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BULLETIN OF YALE UNIVERSITY

School of Forestry

SERIES 59, NUMBER 4. 15 FEBRUARY 1963

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BULLETIN OF YALE UNIVERSITY

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The Bulletin, which is issued semimonthly, includes:
1. *The University Catalogue Number.*
2. *The Report of the Treasurer Number.*
3. *The Catalogue Numbers of the several Schools.*
4. *The Alumni Directory Number.*

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Calendar

1963	17 *June*	*Mon.*	*Summer term begins.*
	31 *Aug.*	*Sat.*	*Summer term ends.*
	16 Sept.	Mon.	Registration for students in the one-year M.F. and in the D.For. programs.
	18 Sept.	Wed.	Registration for students in the two-year M.F. program.
	19 *Sept.*	*Thurs.*	*Classes begin,* 8 A.M.
	27 Nov.	Wed.	Thanksgiving recess begins, 5.30 P.M.
	2 Dec.	Mon.	Thanksgiving recess ends, 8 A.M.
	19 Dec.	Thurs.	Christmas recess begins, 5.30 P.M.
1964	6 Jan.	Mon.	Christmas recess ends, 8 A.M.
	17 Jan.	Fri.	Spring-term programs of study due.
	1 *Feb.*	*Sat.*	*Fall term ends,* 12 M.
	3 *Feb.*	*Mon.*	*Spring term begins,* 8 A.M.
	21 March	Sat.	Spring recess begins, 12 M.
	23 March	Mon.	Students leave for southern field work.
	6 April	Mon.	Classes in New Haven resume, 8 A.M.
	6 *June*	*Sat.*	*Classes end,* 12 M.
	7 June	Sun.	Field trip in Forestry 124b begins.
	13 June	Sat.	Field trip in Forestry 124b ends.
	15 June	Mon.	Commencement.
	22 *June*	*Mon.*	*Summer term begins.*
	5 *Sept.*	*Sat.*	*Summer term ends.*

Corporation of Yale University

President Alfred Whitney Griswold, PH.D., L.H.D., LL.D.

Fellows His Excellency the Governor of Connecticut, *ex-officio.*
His Honor the Lieutenant Governor of Connecticut, *ex-officio.*
Rev. Amos Niven Wilder, D.D., *Cambridge, Mass.*
Wilmarth Sheldon Lewis, LITT.D., L.H.D., *Farmington, Conn.*
Benjamin Brewster Jennings, M.A., *Glen Head, N.Y.** (*June,* 1964)
Juan Terry Trippe, D.C.S., LL.D., *New York City.*
Rev. Gardiner Mumford Day, D.D., *Cambridge, Mass.*
Edwin Foster Blair, LL.B., M.A., *Fairfield, Conn.*
Charles Merville Spofford, LL.B., M.A., *New York City.* (*June,* 1963)
Herbert Francis Sturdy, LL.B., M.A., *Los Angeles, Calif.* (*June,* 1965)
John Hay Whitney, L.H.D., LL.D., *New York City.*
Thomas Keith Glennan, D.ENG., SC.D., LL.D., *Cleveland, Ohio.* (*June,* 1967)
William McChesney Martin, Jr., LL.D., *Washington, D.C.* (*June,* 1968)
Caryl Parker Haskins, PH.D., D.SC., LL.D., *Washington, D.C.*
Joseph Irwin Miller, M.A., *Columbus, Ind.*
Joseph Richardson Dilworth, LL.B., M.A., *Princeton, N.J.*
William Putnam Bundy, LL.B., M.A., *Washington, D.C.*
Harold Howe, 2d, M.A., *Scarsdale, N.Y.* (*June,* 1966)

Provost Kingman Brewster, Jr., LL.B., LL.D.

Secretary Reuben Andrus Holden, PH.D.

Treasurer Charles Stafford Gage, M.A.

Assistant to the President Charles Michael O'Hearn, M.A.

*The date when the term of each Alumni Fellow expires is printed after his name.

Corporation of Yale University

President Alfred Whitney Griswold, PH.D., L.H.D., LL.D.

Fellows His Excellency the Governor of Connecticut, ex-officio.
His Honor the Lieutenant Governor of Connecticut, ex-officio.
Rev. Amos Niven Wilder, B.D., Cambridge, Mass.
Whitney Shelton Lewis, LITT.D., L.H.D., Pennington, Conn.
Benjamin Brewster Jennings, M.A., Class Fund, M.C.*(June, 1964)
Jean Terry Tripp, M.C.S., LL.D., New York City.
Rev. Caroline Mansfield Day, B.D., Cambridge, Mass.
Edwin Scott Dale, LL.B., M.A., Penfield, Conn.
Charles Merville Spofford, LL.B., M.A., New York City.
(June, 1961)
Herbert French Sturdy, LL.B., M.A., Lac Algebi, Que.
(June, 1965)
John Hay Whitney, L.H.D., LL.D., New York City.
Thomas Reath Croxton, B.Litt., M.C.D., LL.D., Cleveland, Ohio
(June, 1967)
William McChesney Martin, Jr., LL.D., Washington, D.C. (June, 1968)
Cloyd Darby Heiskell, B.S.C., LL.D., Washington, D.C.
Joseph Irwin Miller, M.A., Columbus, Ind.
Joseph Hitchcock Dilworth, LL.D., M.A., Princeton, N.J.
William Pierson Bundy, LL.B., M.A., Washington, D.C.
Harold Howe, Ed. M.A., Snowdon, N.Y. (June, 1970)

Power Kingman Brewster, Jr., LL.B., LL.D.

Secretary Reuben Arthur Holden, M.C.D.

Treasurer Charles Scofield Cogan, M.A.

Assistant to the President Charles Mitchell O'Hern, M.A.

*The date when the term of each Alumni Fellow expires is printed after his name.

School of Forestry

PROFESSORS EMERITI

John Shaw Boyce, M.F., PH.D., *Professor Emeritus of Forest Pathology.*
Herman Haupt Chapman, M.F., SC.D., *Harriman Professor Emeritus of Forest Management.*
Ralph Chipman Hawley, M.F., *Morris K. Jesup Professor Emeritus of Silviculture.*
Ernest Theodore Frederick Wohlenberg, M.F., *Professor Emeritus of Industrial Forestry.*

BOARD OF PERMANENT OFFICERS

Alfred Whitney Griswold, PH.D., L.H.D., LL.D., *President of the University.*
Kingman Brewster, Jr., LL.B., LL.D., *Provost of the University.*
George Alfred Garratt, M.F., PH.D., SC.D., *Dean, and Pinchot Professor of Forestry.*
Harold John Lutz, M.F., PH.D., *Morris K. Jesup Professor of Silviculture.*
Walter Huber Meyer, M.F., PH.D., *Harriman Professor of Forest Management.*
Frederick Field Wangaard, M.S., PH.D., *Manufacturers' Association Professor of Forest Products.*
Zebulon Waters White, M.F., *Clifton R. Musser Professor of Industrial Forestry.*

ADDITIONAL OFFICERS

Jesse Howard Buell, M.F., PH.D., *Associate Dean.*
George Mason Furnival, M.F., D.F., *Associate Professor of Forest Mensuration.*
Walter Robert Henson, PH.D., *Associate Professor of Forest Entomology, and Lecturer in Biology.*
François Mergen, M.F., PH.D., *Associate Professor of Forest Genetics.*
John Raymond Reeder, PH.D., *Associate Professor of Biology, and Curator of the Herbarium of Yale University.*
William Edward Reifsnyder, M.F., PH.D., *Associate Professor of Forest Meteorology.*
David Martyn Smith, M.F., PH.D., *Associate Professor of Silviculture.*
Garth Kenneth Voigt, PH.D., *Associate Professor of Forest Soils.*

Albert Cadwallader Worrell, M.F., PH.D., *Associate Professor of Forest Economics.*
Graeme Pierce Berlyn, PH.D., *Assistant Professor of Wood Anatomy.*
Ellis Brevier Cowling, M.S., PH.D., *Assistant Professor of Forest Pathology.*
Robert Macallan Kellogg, M.F., D.FOR., *Assistant Professor of Wood Technology.*
Johnson Parker, M.F., D.F., *Assistant Professor of Plant Physiology.*
Herbert Isaac Winer, M.F., PH.D., *Assistant Professor of Lumbering.*

Albert Eugene Dimond, PH.D., *Lecturer in the Physiology of Trees.*
Henry Walter Hicock, M.F., *Lecturer in Forest Products.*
Joseph Vincent Karabinos, PH.D., *Lecturer in Wood Chemistry.*
Paul Edward Waggoner, PH.D., *Lecturer in Climatology.*

ASSISTANTS IN RESEARCH AND ADMINISTRATION

Janet Geraci Broadbent, *Registrar.*
Frances Mary Bolton, PH.D., *Librarian.*
Patsy Ann Allen, *Secretarial Assistant.*
Mary Casey Austell, *Secretarial Assistant.*
Jean Shirley Burley, *Assistant in Research.*
Dale Whiteside Cummings, *Assistant in Research.*
Susan Craig Endy, *Secretarial Assistant.*
Leo Fabry, *Assistant in Research.*
Alice Hovenden Fink, *Secretarial Assistant.*
Tonny Ström Johansen, CAND. REAL., *Assistant in Research.*
Walter Johnson, *Assistant in Research.*
Eugene Lukomsky, *Horticulturist.*
Blanche Simpson Murdock, M.A.T., *Assistant in Research.*
Ann Howard Mills, *Assistant in Research.*
Ethel Beard Nelson, *Secretarial Assistant.*
Andrew Eugene Petracco, *Assistant in Research.*
James Frederick Randall, *Electronic Engineer.*
Leila Willner, *Cataloguing Assistant in the Library.*

ALUMNI EXECUTIVE COUNCIL 1961-63

William P. House, M.F. 1937, *President, Chesham, N.H.*
Edgar P. Wyman, M.F. 1939, *Vice-President, Storrs, Conn.*
Robert W. Eisenmenger, M.F. 1951, *South Natick, Mass.*
Arthur W. Greeley, M.F. 1935, *Washington, D.C.*
Arthur W. Nelson, Jr., M.F. 1939, *Glendale, Ohio.*

UNIVERSITY COUNCIL COMMITTEE ON THE SCHOOL OF FORESTRY

Hugh P. Brady, B.A. 1914, *Chairman, Seattle, Wash.*
Richard C. Doane, B.A. 1919, *New York City.*
B. Frank Heintzleman, M.F. 1910, *Juneau, Alaska.*
John M. Musser, B.A. 1930, *St. Paul, Minn.*
James S. Rockefeller, B.A. 1924, *Greenwich, Conn.*
G. Corydon Wagner, PH.B. 1916, *Tacoma, Wash.*
John W. Watzek, Jr., PH.B. 1913, *Chicago, Ill.*
Frederick K. Weyerhaeuser, B.A. 1917, *St. Paul, Minn.*

History and Organization

The School of Forestry was founded in 1900 and is the oldest institution of its kind in continuous operation in America. The men responsible for its establishment were Gifford Pinchot, B.A. 1889, LL.D. 1925, and Henry S. Graves, B.A. 1892, LL.D. 1940, the first Director and later Dean of the School. These two men were among the first Americans to obtain professional forestry training abroad. The Yale School of Forestry is the result of their conviction that the availability of comparable professional education in this country was one of the first prerequisites for the development of forestry in America. At the time of its foundation, the School was designed to educate men for a profession which did not exist on this continent. Its subsequent development has been coincident with the remarkable advances in American forestry over the intervening years.

The initial endowment of the School was a gift from the family of Mr. James W. Pinchot, honorary M.A. 1905. The permanent funds now available for instruction and research in forestry aggregate over $2,500,000, subsequent additions having been made to the original endowment by members of the Pinchot family and by the forest industries, as well as by alumni and other friends of the School. The work of the School is also supported by substantial contributions from the general funds of Yale University.

In its program of professional training, the School provides a preparation for the general practice of forestry, designed to meet the needs of men entering either public or private employment. In its program of scientific training, the School offers instruction for advanced students who are interested in teaching or research, or who wish to specialize in various branches of forestry or the related sciences.

The School of Forestry is organized on a graduate basis, parallel with the Schools of Medicine and Law and the Divinity School. Its work is

intimately correlated with that of other University departments, especially with those of Biology, Economics, Engineering and Applied Science, Geography, Geology, and Industrial Administration, the facilities of which are available to qualified students working in the field of forestry.

Like other schools in the University, the School of Forestry is under the direction of a Dean as executive officer, with a governing board composed of the President, the Provost, the Dean, and the members of the Forestry faculty of professorial grade. A board representing the Yale Forest School Alumni Association acts in an advisory capacity to the officers of the School.

EDUCATIONAL FACILITIES

EQUIPMENT AT NEW HAVEN. The main building of the School is Sage Hall, a four-story brownstone building situated at 205 Prospect Street on Pierson–Sage Square. This building, the gift of William H. Sage, B.A. 1865, in memory of his son, DeWitt Linn Sage, B.A. 1897, was completed in 1923. Bowers Hall was erected in 1931 as an addition to Sage Hall from funds provided by the bequest of Edward A. Bowers, B.A. 1879.

Sage Hall contains laboratories for work in wood anatomy and silviculture, a library, a reading room, a herbarium and wood room, classrooms, a students' common room, and offices. Bowers Hall contains an auditorium, offices, and soils laboratories.

The other buildings of the School of Forestry are located at 360 and 370 Prospect Street. Facilities for research and instruction in mensuration, photogrammetry, biometry, economics, and forest meteorology are located in Marsh Hall, a four-story brownstone building originally the residence of Professor Othniel C. Marsh, B.A. 1860, who bequeathed it to the University in 1899. The William B. Greeley Memorial Laboratory, named in honor of William Buckhout Greeley, M.F. 1904, is a modern, one-story building which houses laboratories

and other facilities for work in wood technology, forest genetics, tree physiology, and forest pathology. This building, completed together with an adjacent greenhouse early in 1959, was provided by funds donated by the forest industries, The John A. Hartford Foundation, and other benefactors.

The Henry S. Graves Memorial Library is housed in Sage Hall. It comprises over 90,000 volumes relating to forestry and is one of the largest forestry libraries in existence. It is well equipped with both American and foreign material. The purchase of the library of Robert Hartig in Germany in 1903 furnished the basis for the collection of foreign publications, for it contained many early works and a number of sets of periodicals in German and French dating from the first part of the nineteenth century. The School receives over 200 periodicals and other serial publications of importance in forestry. The library is freely available for the use of all students and is the most important feature of the educational facilities at the School.

The School also maintains the Samuel J. Record Memorial Collection, which now consists of more than 53,000 samples of woods from all parts of the world. These afford facilities for students interested in the commercial timbers of foreign countries, particularly of the tropics, and also provide the basis for research in the classification and comparative anatomy of woods. More than 18,000 of the tropical trees from which wood samples were obtained are represented in the herbarium of the Collection.

SUMMER CAMP. The summer session is conducted on the Great Mountain Forest in the towns of Canaan and Norfolk, Litchfield County, Connecticut. The forest is owned by Edward C. Childs, B.A. 1928, M.F. 1932, and comprises 6,800 acres of both hardwood and softwood timber. Under a coöperative agreement the tract is used as a field laboratory for instruction and research. The headquarters are in an attractive group of permanent camp buildings owned by the School and containing comfortable facilities for board, lodging, classwork, and recreation.

SOUTHERN CAMP. Students in the Silviculture-Management and the Forest Management-Utilization majors conclude their work with a program of field instruction in the South. This work is offered in the spring term and includes field courses in forest management as well as in the harvesting and manufacture of forest products. Headquarters for this work have been permanently established on the lands of the Crossett Division of Georgia-Pacific Corporation, at Crossett, Arkansas. The tract consists of over 500,000 acres under systematic forest management; the highly diversified manufacturing facilities at Crossett are also used for instructional purposes. A completely equipped set of camp buildings is maintained for the use of the School.

SCHOOL FORESTS. The School conducts its field work in part on its own property and in part on forests which have been placed at its disposal under very favorable terms of occupancy and use. The following forests are owned by the University and administered by the School:

The *Keene Forest, near Keene, New Hampshire.* This tract of 1,400 acres is the site of a long-term investigation into all aspects of intensive management of eastern white pine and other conifers. The forest was acquired gradually between 1913 and 1938 through gifts from many friends of the School.

The *Yale Forest, located in Tolland and Windham counties, Connecticut.* This forest of about 7,700 acres is well stocked with wildlife and is representative of the hardwood, hemlock-hardwood, and white pine types of the Northeast. It is used for instruction and research in various phases of forestry and conservation. Most of the tract was given to the University in 1932 by George H. Myers, B.A. 1898, M.F. 1902.

The *Bowen Forest, near Belmont, Vermont.* This is a tract of 500 acres devoted to the management of the spruce, fir, and northern hardwood types commonly found in the mountains of the Northeast. The forest was given to the University in 1922 as a memorial to Lieutenant Joseph B. Bowen, M.F. 1917, by his family.

The *George P. Brett Pinetum, at Fairfield, Connecticut.* This is a living collection of over 100 species of world conifers established by the late

George P. Brett during the 1920's. It occupies five acres and is used chiefly for work in forest genetics. The purchase of the arboretum in 1957 was made possible by a gift from Richard M. Brett, M.S. 1955.

OTHER FACILITIES FOR FIELD WORK. In addition to the foregoing the School has the use of two other forests:

The *Natural Preserve, owned by Yale University*. This is a hardwood forest of about 100 acres located on the edge of the city of New Haven. It is used for instruction and research in the ecological aspects of forestry, botany, and zoology.

The *Eli Whitney Forest, owned by the New Haven Water Company*. This forest of 22,000 acres is composed of several tracts immediately adjacent to New Haven. Administered for over half a century under a coöperative arrangement between the Company and the School, it constitutes one of the oldest continuously managed forests in the country. It is composed predominantly of native hardwoods and hemlock, but also contains extensive coniferous plantations. This forest is the School's main field laboratory for instruction and research in forest ecology and silviculture.

COÖPERATING AGENCIES. The School of Forestry works in close coöperation with several agencies located in New Haven which are not connected with Yale. These organizations include the Connecticut Agricultural Experiment Station and the Forest Insect and Disease Laboratory of the Northeastern Forest Experiment Station, United States Forest Service.

Programs and Admission Requirements

MASTERS DEGREES

The professional degree, *Master of Forestry* (M.F.), is conferred by the School of Forestry upon satisfactory completion of programs of study designed to prepare men for careers in the forestry profession.

Two general curricula lead to the M.F. degree. One affords training in forestry for men who have as undergraduates majored in other subjects. The program of study consists largely of a series of prescribed courses extending through one summer term and two academic years. A limited number of options are provided to suit the special interests of the student. This curriculum, which is patterned after those designed for professional training in law and medicine, is intended for men who have good foundations in one or more of the disciplines basic to forestry.

The second curriculum leading to the M.F. degree is intended for men who have undergraduate degrees in forestry and wish to strengthen their professional backgrounds or develop special knowledge in some particular phase of forestry. The program of study is highly flexible, being adjusted to the needs and interests of the individual. Forestry graduates of colleges and universities offering accredited instruction in forestry normally qualify for the M.F. degree in one academic year. The time required by forestry graduates of other institutions is usually one-and-a-half academic years, but may vary from one year to two years, depending on the extent and character of previous training.

The degree of *Master of Science* (M.S.) in forestry is conferred by the Graduate School, but the studies are directed by the faculty of the School of Forestry, organized as the department of Forestry in the Graduate School. This program is intended for qualified students who

wish to specialize in some particular phase of forestry but have no need or desire for full professional training.

DOCTORAL DEGREES

Doctoral study in forestry at Yale may lead either to the degree of *Doctor of Forestry* (D.For.) conferred through the School of Forestry, or to that of *Doctor of Philosophy* (Ph.D.) conferred through the Graduate School. Study for the latter degree is directed by the department of Forestry in the Graduate School, which comprises the faculty of the School of Forestry and representatives of allied departments of the University. Both doctoral programs are designed primarily for men who wish to prepare themselves for careers in teaching or research. They differ chiefly in that the D.For. course of study and dissertation subject may emphasize applied or technological instruction and research, whereas the Ph.D. program is chiefly concerned with the basic scientific, mathematical, or economic aspects of forestry.

Students who wish to study for the D.For. degree must have obtained the M.F. degree, or equivalent professional training, before starting study for the doctorate. Students with bachelors' degrees representing scientific training appropriate to their chosen fields of specialization may embark directly on study toward the Ph.D. degree, although it may sometimes be desirable to study for the M.F. degree first.

Prospective applicants for admission to graduate study in any phase of forestry should direct their first inquiries to the Dean of the School of Forestry, explaining their objectives and describing their previous training. Those whose interests will best be served by work toward the M.S. or Ph.D. degree will then be referred directly to the Graduate School.

COMBINED BIOLOGY AND FORESTRY STUDIES

The School does not offer a four-year undergraduate curriculum in forestry. However, undergraduates in the program of Combined Bi-

ology and Forestry Studies in Yale College may qualify for the privilege of starting the normal two-year curriculum leading to the M.F. degree at the end of the Junior year, beginning with the work of the summer term. In order to qualify, such students must achieve a weighted average of 80 per cent or higher in the work of the first two-and-one-half years in Yale College. They become eligible for the B.S. degree at the conclusion of the Senior year, which is devoted entirely to the forestry program, and may then apply for admission to the School of Forestry for the final year of work leading to the M.F. degree. In this way men in the Combined Studies can complete their professional training in five years of collegiate work. Those who embark on this program but fail to achieve the necessary average for admission to forestry courses at the end of the Junior year may continue in the biology major and apply for admission to the School of Forestry upon graduation from Yale College.

SPECIAL STUDENTS

Under special circumstances, college graduates who do not intend to qualify for a degree may be admitted to the School of Forestry as special students to pursue work in subjects for which they have had sufficient preliminary training.

INDUSTRIAL FORESTRY SEMINARS

Several times each year the School conducts special short-term seminars for practicing foresters and executives who are associated with or interested in the conduct of forestry by industrial enterprises. The sessions are devoted to intensive study and discussion of a broad variety of the common problems and procedures involved in the management of forest industries. Typical subjects covered in the discussions include income taxation, legal and financial aspects of forest management, labor relations, public relations, and recent advances in forest products research. The discussions are led by experts in these subjects drawn from

all parts of the country. The sessions will usually take place at the School of Forestry, but may sometimes be held in coöperation with institutions in other forest regions of this country or Canada. Tuition is $200 for seminars of ten-days' duration, and $100 for five-day sessions. Participants need not have had formal training in forestry. The requirements and procedures for admission described in the following sections do not apply to the Industrial Forestry Seminars. Further information about them may be secured by corresponding directly with the Professor of Industrial Forestry, who is in charge of this program.

INSTRUCTION FOR STUDENTS IN OTHER DIVISIONS OF THE UNIVERSITY

Both graduate and undergraduate students in any division of Yale University may, with the consent of the Deans or other authorities concerned, elect courses offered by the School of Forestry for which they are prepared. The same election in other departments of the University is available to students registered in the School of Forestry.

Although women are not admitted to study for degrees in the School of Forestry, those registered in the Graduate School may study for the M.S. or Ph.D. degrees in certain specialized branches of forestry. Those registered in other departments of the Graduate School may, by special permission and if properly qualified, take any of the courses offered by the School of Forestry, except for certain courses or portions thereof that involve extended periods of field work.

REQUIREMENTS FOR ADMISSION

Master of Forestry (Two-Year Curriculum)

Men graduates of colleges and universities of requisite standing, who have completed the normal four-year program for a bachelor's degree, or Seniors who expect to receive such a degree, will be considered for

admission to the two-year curriculum leading to the Master of Forestry degree, provided they have done creditable work in certain prerequisite undergraduate courses and have otherwise acceptable academic records. Applicants must have a knowledge of mathematics through trigonometry. They must also have taken at least one college course in general botany; the botanical instruction normally included in college courses in general biology is usually acceptable for discharge of this requirement. In addition, they must have had at least one college course in any four of the following subjects: advanced botany, zoology, geology, soil science, meteorology, chemistry, physics, mathematics beyond trigonometry, economics, or those parts of engineering which deal with mechanics or the properties of materials.

The two-year M.F. curriculum is designed for men who have majored in subjects other than forestry, but preference is accorded to students whose undergraduate training represents an outstandingly good foundation for education in forestry. Since forestry is an applied science, thorough grounding in one or more of the underlying sciences, particularly botany, usually represents the best foundation. However, preparation should not be concentrated in the physical and natural sciences to the exclusion of the humanities and social sciences. Men who have majored in the humanities and social sciences are considered eligible for admission, provided that they can meet at least the minimum prerequisites in the sciences. Undergraduates who have majored in economics, engineering, or mathematics are well prepared for specialization in certain branches of forestry, although it is desirable that a complete professional training in forestry precede such specialization.

Students in any field of study who wish guidance in arranging undergraduate programs in anticipation of training in forestry at Yale are invited to correspond or consult with the Dean at any time.

Master of Forestry (One-Year Curriculum)

The normal four-year undergraduate curriculum at an accredited department, school, or college of forestry will ordinarily be accepted as

meeting all course prerequisites for admission to the one-year M.F. curriculum.

Doctor of Forestry

The M.F. degree, or its equivalent, is a prerequisite for admission to studies leading to the degree of Doctor of Forestry. However, men who are studying for the M.F. with the intention of continuing into work at the doctoral level are encouraged, in so far as possible, to take courses which represent logical preparation for subsequent advanced studies. Applicants for study toward the doctorate are judged on the basis of their demonstrated or potential ability for original research and other scholarly work.

Application Procedure

Application for admission to studies leading to either the M.F. or D.For. degree must be made to the School of Forestry on a form which will be furnished by the Registrar upon request. It must be accompanied by official transcripts of the student's academic record at all colleges and universities which he has attended, and will not be regarded as complete until all additional information indicated on the application form has been filed. Applicants desiring financial assistance and those residing outside North America are required to submit their applications *by February* 1 *preceding the academic year in which they desire to enroll;* all others are strongly urged to file their applications by that date. Only under exceptional circumstances will consideration be given to applications for admission submitted after June 1.

Applications from men who desire to enroll in the School of Forestry as special students are handled in the same manner as those from men who seek admission for work leading to a degree.

Applicants for whom English is not a native language may be required to file a statement of proficiency in the use of the English language; each statement must be certified by a person fluent in English.

Formal *application for admission to study for the Ph.D. or M.S. degree*

should be submitted to the Assistant Dean of the Graduate School *not later than February* 1, but initial inquiries are best directed to the School of Forestry.

GRADUATE RECORD EXAMINATION

Applicants who wish to be admitted to study for the M.F. degree are *urged* to take the Aptitude Test (verbal and quantitative factors) of the Graduate Record Examination. Such action is strongly recommended to men who are applying for financial aid and to those whose undergraduate records are not of the highest caliber. In doubtful cases, action on applications will be deferred until the men involved have taken this test. Therefore, it is advantageous to take the test before the final date for submission of applications.

Applicants from the United States and Canada who wish to study for the D.For. degree (or the M.S. or Ph.D. degrees in the Graduate School) are *required* to submit transcripts of their scores in the Aptitude Test of the Graduate Record Examination before their applications can be considered. If this test has been taken previously, it is not necessary to repeat it at the time of application for admission; in such cases, it is sufficient to submit a transcript of the scores already achieved.

Information about the Graduate Record Examination may be obtained and arrangements for taking it may be made by direct application to the Educational Testing Service, Princeton, New Jersey. Applicants in the West may write to the Educational Testing Service, 4640 Hollywood Boulevard, Los Angeles 27, California. The examination is given periodically at many colleges and universities throughout the United States and Canada, and local examiners at these institutions can advise students about the procedure for making application. The examination tests general knowledge and does not require special preparation. There is no arbitrary passing grade in any of the tests; the scores achieved by an applicant are regarded as an important supplement to the transcripts of his academic record.

These examinations are to be given on April 27, July 6, and November 16, 1963, as well as on January 18 and March 7, 1964, but the closing dates for applications for each examination come fifteen days earlier. Owing to the delay in reporting G.R.E. scores, doctoral applicants may jeopardize their chances of obtaining financial aid if they take the examination later than the November 16 testing.

General Information

REGISTRATION

Each student must make final registration at the office of the Registrar of the School of Forestry, 26 Sage Hall, 205 Prospect Street, New Haven, prior to the opening of the term for which he is enrolling. (See Calendar, p. 3.) Registration for the summer term of 1963 will be made on the *morning* of Monday, June 17. Fall-term registration for students enrolling in the one-year M.F. program or in the D.For. program will be made on Monday, September 16; for students in the two-year M.F. program it will be made on Wednesday, September 18. A penalty of $10 will be charged for late registration.

Each student is required to file his fall-term program of study with the Registrar at the time of fall registration. There is no special registration for the spring term, but each student is required to file his program of study with the Registrar two weeks prior to the close of the fall term.

All foreign students are required to complete a non-academic registration at the Bureau for Foreign Nationals (see p. 34) prior to their regular academic registration.

TUITION AND OTHER EXPENSES

TUITION. Tuition charges are as follows: for the M.F. degree and special students, $500 for full work in each fall and spring term (i.e., $1,000 for the September to June academic year), $300 for half of full work in each of these terms, $250 for the summer term; for the D.For. degree, $675 per term for full work, $400 per term for half of full work.

The least total tuition payable by a student is determined by the minimum time requirement for the degree; i.e., one year, or two years

plus the summer term, for the Master of Forestry, and two years beyond the master's degree for the Doctor of Forestry.

A student proceeding to the D.For. degree who has paid the required full tuition for two years beyond the master's degree will thereafter be charged the dissertation fee of $250 for each year of residence or of registration in absentia. Students eligible for the reduced fee of $250 may audit courses without extra charge. When such a student takes courses for credit, his tuition charges will be computed on a prorata basis. In no case can this charge be less than the dissertation fee.

A student who has paid part-time tuition fees during his first two years of residence beyond the master's degree will be charged in his third year the remainder of the minimum tuition he owes, but in no case will the fee be less than $250.

A student who, having met the minimum time requirement and paid the required minimum tuition, continues work as a candidate for the degree, either in residence or in absentia, must pay the fees applicable, usually the dissertation fee. Students in residence while completing their dissertations must register each year at the beginning of the fall term and will be subject to the appropriate fee each year they remain in residence. Registration and payment of fees each year is required of all students as long as their candidacy is still in progress, except students who are excused from registration by the Dean. Appointment to a University post does not exempt the student from registration and payment of fees. A student who has discharged the minimum tuition requirement and who has permission from the Dean to work in absentia is required to register, however, only at the beginning of the term in which he plans to present his dissertation. Before obtaining permission from the Dean to work in absentia on a dissertation, the student must show that he has made substantial progress on his dissertation and that he has received sufficient guidance.

When graduate study done elsewhere is accepted in partial fulfillment of the normal residence requirements for the M.F. or D.For. degree, no tuition will be charged for the amount of work accepted in lieu of work in the School of Forestry.

BOND. Upon registration each student is required to file with the Registrar an application for a bond, from a corporation designated by the Treasurer of the University, that his financial obligations to the University will be guaranteed by that corporation. A form to be used in applying for the bond is furnished the student at the time of his initial registration; the fee is included in the tuition charge. No student will receive his diploma until all obligations to the University have been discharged.

PAYMENT OF BILLS. Bills for tuition are sent from the University Bursar's office during the first half of October and February for the fall and spring terms respectively. Payment must be made on or before the date, about two weeks later, specified on the bill; after that date the Bursar is required to collect a penalty of $5 in addition to the amount due. If a student resigns during the first fourteen days of the fall term, full rebate of tuition will be made. If the resignation is accepted during the remainder of the first half of the fall term, or during the first half of any other term, one third of that term's tuition will be canceled. If a student resigns after midterm, no part of the tuition will be rebated.

FIELD WORK. The field courses necessitate traveling expenses which vary from year to year according to the localities where the work is conducted. Expenses in connection with the field work in New Haven are usually not over $30. The southern field work involves transportation expenses to Arkansas and about $15 per week for board plus some incidental expenses while away from camp. At the eleven-week summer camp in Connecticut a lump sum of $200 is charged for living expenses. Students taking the southern field work or that of Forestry 124b or 129b will need blankets or sleeping bags.

ROOMS AND BOARD. Board can be obtained in New Haven at prices ranging from $20 per week upward. Room rent for single students amounts to $9 or more per week. Accommodations for married students range up to $85 or more per month.

GENERAL EXPENSES. The total cost of an academic year of study toward the M.F. degree is likely to be at least $2,200 for a single student and $3,200 for a married student, exclusive of the cost of transportation to and from New Haven. Total expenses for the summer term range from $500 to $575. Expenses for study toward a doctoral degree will be $350 more per academic year because of the difference in tuition.

SCHOLARSHIPS AND FELLOWSHIPS

The School of Forestry ordinarily grants about twenty tax-free scholarships and fellowships each year. Recipients are required to pay tuition charges, but no assistance in teaching or research or other service is demanded of them. Applications for the following academic year should be filed not later than February 1 on forms which may be obtained from the Registrar of the School. Awards for the coming year are usually announced by early April. Scholarships cover the cost of tuition. Annual grants from fellowships range up to $2,300, occasionally more.

Advanced students specializing in forestry in the Graduate School are eligible not only for awards from the School of Forestry but also for certain Graduate School scholarships and fellowships. Information regarding awards made by the Graduate School may be obtained upon application to the Assistant Dean of that School.

Scholarships and fellowships are granted on the basis of the excellence of past attainments in college as well as the need for financial help. Students who receive scholarships are not barred from the assistantships described below.

ASSISTANTSHIPS

Approximately twenty assistantships are annually available in research, instruction, or administrative activities. The assistantships may involve either part-time work during the school year, full-time work during

the summer, or both. Student assistants earn from $850 to $2,700 during the school year, depending on their qualifications and the amount of work involved. The rates for full-time work during the summer range from $300 to $400 per month. In some instances, investigative work conducted in performance of duties may be counted for academic credit. Stipends for assistantships are subject to federal income taxes and deductions for social security payments. Assistants may work up to twelve hours per week during school time and still carry a full program of courses for credit.

Assistants may be appointed in any of the fields of study with which the School concerns itself. Ordinarily about five assistantships are available for work in wood technology. As many as twelve assistants are appointed each year to aid in the program of research in forest biology. Assistantships are also available in lines of forestry work not involved in these two programs. Applicants for assistantships should indicate those fields in which they believe they might be qualified to serve. Scholastic records of applicants are taken into consideration in assigning assistantships.

Applications should be filed not later than February 1 on blanks which may be obtained from the Registrar of the School.

LOANS

The School of Forestry also has limited resources for loans to promising students in need of financial help. Such loans are granted only to students in residence. They are payable within seven years after graduation, and interest at the rate of 2 per cent per annum is charged from the date of graduation to the due date. Students desiring loans should apply to the Dean.

PRIZES

The *William Egbert Wheeler Prize,* established in 1911 by gift from the family of William Egbert Wheeler, B.A. 1866, is awarded annually to

Medical Center
Schools of Medicine
& Nursing
Grace New Haven
Hospital
Park
St.
Memorial
Unit
Davenport
Avenue
Howard
Avenue
York
Street
Edward S.
Harkness
Mem Hall
Cedar
Street
Institute of
Human Relations
Sterling
Dormitory
Avenue
To Yale Bowl
To Yale Golf Course
Whalley
Avenue
Howe St
Dixwell
Avenue
Ray Tompkins
House
Payne Whitney Gymnasium
Christ Church
Tower
Parkway
Broadway
Morse
Stiles
Chapel of
St Thomas More
Drama
Annex
Park
Pierson
Site of
Art &
Architecture
Building
Vale Daily
News
Davenport
To Medical Center
University Press
Calvary Baptist
York
Street
Jonathan Edwards
Wright
Stiles
Brandford
Saybrook
Sterling
Trumbull
Memorial
Library
Sterling
Law Buildings
Mary's
Grove St
High
Street
Harkness Tower
Dwight Hall
McClellan
Connecticut
Old Campus
Phelps
Battell
Chapel
Berkeley
Calhoun
Site of
Rare Book &
Manuscript
Library
Hewitt
Woodbridge
Quad
University
Drama Hall
Wesley
Hall
Taft Hotel
College
Street
First Methodist
431 College
403 College St.
Elizabethan
Club
Dept of
Univ Health
Storrs
Hall
Hendrie
Faculty Club
Alumni House
Sillman
Hall
Sterling Tower
Farnam
Durfee
Freeland
Dunham
Mason
Hillhouse
Hillhouse
St Mary's
Church
Chapel
Trinity Church
Center Church
United Church
Elm
Temple
Grove
Wall
Public Library
County Court House
Timothy Dwight
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Post Office
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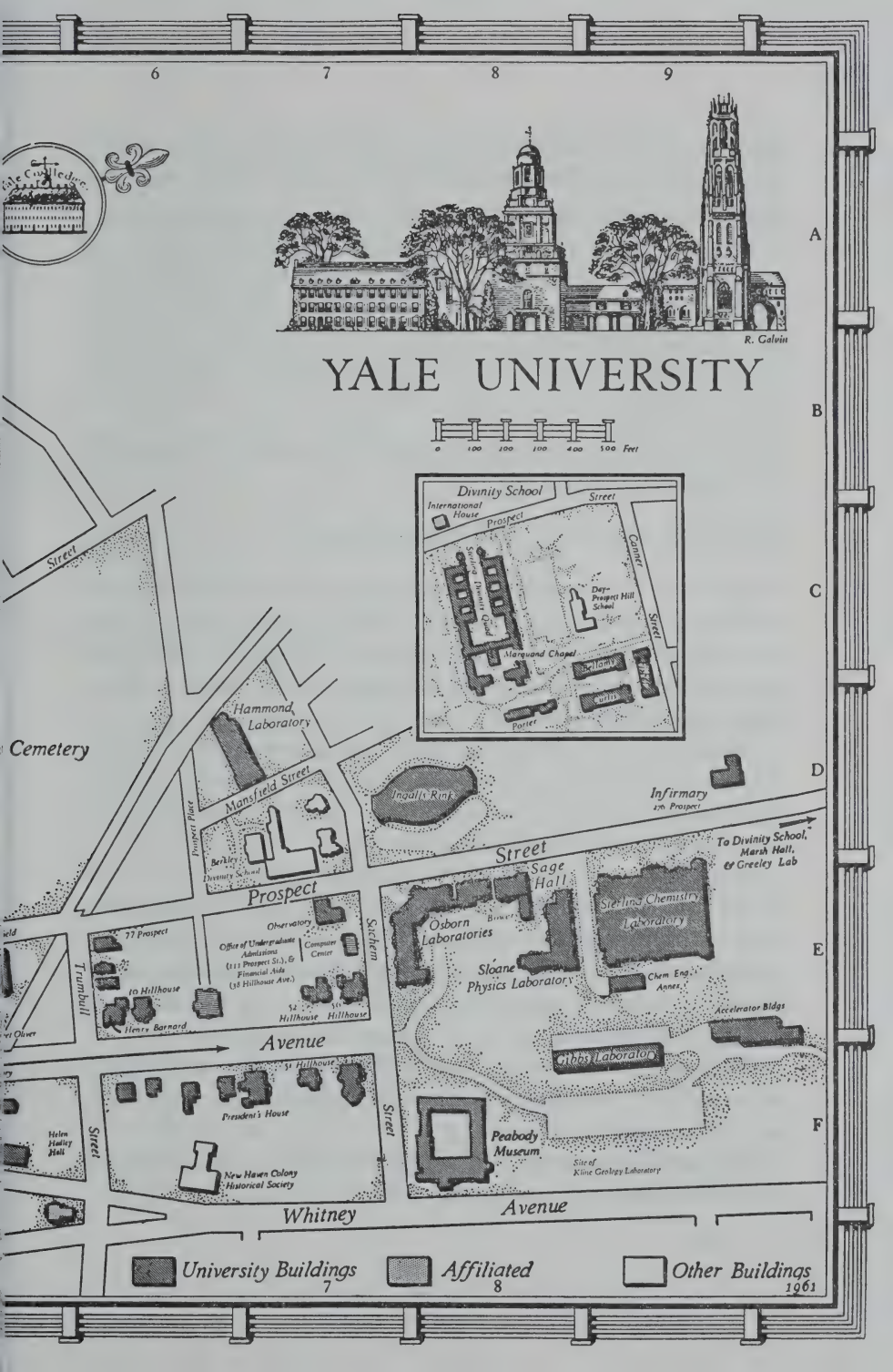
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R. Galvin
YALE UNIVERSITY
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Divinity School
International House
Prospect Street
Sterling Divinity Quad
Day-Prospect Hill School
Canner Street
Marquand Chapel
Williams
Welch
Porter
Hammond Laboratory
Cemetery
Mansfield Street
Prospect Place
Ingalls Rink
Infirmary
170 Prospect
To Divinity School, Marsh Hall, & Greeley Lab
Sage Hall
Osborn Laboratories
Sterling Chemistry Laboratory
Sloane Physics Laboratory
Chem Eng. Annex
Accelerator Bldgs
Gibbs Laboratory
Prospect
Observatory
77 Prospect
Office of Undergraduate Admissions (123 Prospect St.), & Financial Aids (38 Hillhouse Ave.)
Computer Center
Sachem
Trumbull
to Hillhouse
Henry Barnard
Hillhouse
Avenue
51 Hillhouse
President's House
New Haven Colony Historical Society
Helen Hadley Hall
Peabody Museum
Site of Kline Geology Laboratory
Whitney
University Buildings
Affiliated
Other Buildings
7
8
1961

the student who secures the highest standing both in class and field work in silviculture. The amount of the prize is the income from $1,500.

The *Charles Lathrop Pack Foundation Prize* was established in the spring of 1924 by a gift of $2,000 from Charles Lathrop Pack of Lakewood, New Jersey. The income from this fund is offered as an annual prize for the best original article of popular interest on some forestry subject. The competition is open to members of the School of Forestry and to Seniors in Yale College taking the Combined Biology and Forestry Studies.

A number of University prizes are open to competition by students in all schools of the University.

GENERAL UNIVERSITY PRIVILEGES

A calendar of events in the University is issued each week during the academic year in the *Yale University Weekly Calendar,* which is posted on the bulletin board of the School of Forestry. The hours when special and permanent collections of the University may be seen are also recorded in this publication.

The facilities of the several libraries of the University, which contain over 4,570,000 volumes, are available to men in the School of Forestry. Students are encouraged to use the University Library, as well as the libraries of departments allied to forestry.

Over twenty endowed lecture series are given each year upon such diverse subjects as journalism, law, chemistry, art, and religion, among many others. Lectures are open to all students in the University.

Musical engagements arranged annually include chamber concerts, symphony concerts, organ recitals, performances by students in the School of Music, and concerts by distinguished artists.

The Peabody Museum of Natural History contains collections in anthropology, mineralogy, oceanography, paleontology, and some aspects of zoology.

The Art Gallery contains representative collections of ancient, medieval, Renaissance, and modern art.

The privileges of The Church of Christ in Yale University are extended to all students of the University and to members of the faculty and administrative staff. The Church is nonsectarian. Chaplains of the several faiths serve the students.

The facilities of the Payne Whitney Gymnasium are available to men students and faculty members in all schools of the University. They may use the gymnasium and all of its facilities, except the special baths, upon payment of a fee of $15 for the school year or $10 for the second term only. Transfer of gymnasium membership to another or use of a member's privileges by an outsider is not permitted. Students may skate at the David S. Ingalls Rink at scheduled times. A nominal charge is made.

The Financial Aids Office, at 111 Prospect Street, is maintained to give assistance to self-supporting students in obtaining employment during termtime.

HEALTH SERVICES

The Department of University Health is available to *all* members of the University for *initial advice and referral* regarding health problems. *For students,* twenty-four-hour coverage for emergency problems is available throughout the calendar year through the University Police (telephone 787–3131, extension 330). Full clinic services are available from September 1 of each academic year through Commencement Day at 435 College Street, and limited service through the same station Monday through Friday during the summer recess.

The Yale Infirmary, at 276 Prospect Street, is available to students for in-patient care from September 1 through Commencement Day.

Students should regard the Health Service as their *point of first call* for all health problems. All general and most specialist care is available to them in the Clinic. When outside care is required the best arrangement can be made through the Health Service.

A medical examination by the Department of University Health is required of each entering student. Subsequent examinations may be ordered at the discretion of the staff. Evidence of immunity from

smallpox is required for entrance to the University. The right is reserved to vaccinate any student whose evidence of immunity is not satisfactory to the Department.

Most of the costs of health service care, when provided in the Health Service building or in the Infirmary, are covered in the tuition fee. Certain special procedures are not included in this fee, and are subject to extra charge. Students will be informed when such extra charge is involved in services recommended. In almost no instances are services provided in doctors' private offices, outside of University buildings, covered under the tuition fee, even when students are so referred by the Health Service.

The coverage also includes a Medical Indemnity Plan which helps defray expenses arising from illness requiring care in a general hospital. This plan remains in effect from the date the student starts his academic work at Yale until the final day of the month in which he graduates or otherwise severs his connection with the University.

The detailed benefits and exclusions of the Health Service coverage are explained in a leaflet issued at registration, or available on application at the Department of University Health.

Married students' dependents are not covered under these services. However, they may receive coverage under the Medical Indemnity Plan for an additional fee, upon *personal application of the student* at the Department.

Individuals studying under Yale auspices in the Greater New Haven area, and not paying a full tuition fee, will be billed a University Health Service fee of $65 by the Bursar, unless they can demonstrate at the University Health Service office, 435 College Street, that they have other adequate health insurance.

BUREAU FOR FOREIGN NATIONALS FULBRIGHT AND FOREIGN STUDY PROGRAMS

This office is the authorized University representative for all negotiations between resident foreign nationals and the United States Govern-

ment. All questions relating to the United States Immigration and Naturalization Service and the United States Department of State can be referred here. In addition, the Bureau acts as an information center for foreign nationals in matters relating to non-academic activities. All foreign nationals are required to register with this office at the beginning of each academic year.

For students who are United States citizens the Bureau will also distribute and process applications for Fulbright Awards and will provide information relating to Fulbright Awards at faculty level.

Students who desire information concerning study abroad may direct their inquiries to this office.

OFFICE FOR SELECTIVE SERVICE AND VETERANS AFFAIRS

This office is the authorized University representative in all negotiations with the Veterans Administration and the Selective Service System.

The University has assigned to this office the following functions:

1. Official registration of all veterans and "war orphans" for educational benefits under the provisions of Chapters 33 and 35 of Title 38, United States Code, "Veterans Benefits."

2. Official selective service registration and all contact with local boards, including University certification of student status.

Students may obtain general information concerning military service at this office. In this connection, the office has prepared a booklet, *Military Service: Opportunities and Obligations.*

Instruction in Forestry

DEGREES CONFERRED THROUGH THE SCHOOL OF FORESTRY

Master of Forestry

The degree of Master of Forestry is conferred upon students who have satisfactorily completed the necessary program of resident technical study, the length of time required being determined by the student's previous training and by the quality of his work in the School of Forestry. With the approval of the faculty, work of equivalent grade done in residence at another school of forestry or an institution where forestry is taught as a major subject will be accepted toward the degree.

Students who have completed an acceptable undergraduate course in forestry may qualify for the M.F. degree with one academic year of work in residence. Students who have had no previous professional training in forestry will require two years of resident study (including one summer term) to qualify for the degree.

At the beginning of the academic year each student is required to prepare his fall-term plan of study in consultation with his faculty adviser. At that time, general consideration will also be given to the spring-term program, although submission of a complete course schedule is not required until two weeks prior to the close of the fall term.

ONE-YEAR CURRICULUM. There is no prescribed program for students who have completed an acceptable undergraduate course in forestry, but the elected work must have a definite relation to the individual's needs or to his field of interest. The program of study for such men may include a limited number of formal forestry courses which were not adequately covered in undergraduate study, but it will be

composed largely of advanced courses, seminars, and special project work. Students enrolled in this program are normally required to complete a minimum of four courses per term, so selected as to form a logical and correlated schedule. With the permission of the Deans concerned, students may also elect appropriate courses in biology, chemistry, economics, engineering, geography, geology, mathematics, statistics, and other subjects in the University outside the School of Forestry. In order to allow time for proper selection of courses, students enrolling in the one-year program are required to register in New Haven three days prior to the beginning of classes in the fall.

The normal program of study for men training to become practitioners of general forest management includes the southern field work and such students should make their plans for the spring term accordingly. However, men in this category who wish to specialize in some particular aspect of forestry may be permitted to continue their work in New Haven during the spring term if a more appropriate program of study can be arranged.

A thesis is not required of candidates for the M.F. degree, but may be elected by qualified students who wish to devote a substantial amount of time to a specific research project during their year of residence. One typewritten and substantially bound copy of the thesis, including a one-page digest or summary of the main results obtained, must be submitted to the Registrar by March 1 if the candidate expects to take the spring field work in the South, or by May 15 if he remains in New Haven.

TWO-YEAR CURRICULUM. Students who have had no previous professional training in forestry start their work with the summer term at the School's camp in northwestern Connecticut (see p. 13). There Forestry 140s and 150s are required courses for all. At the beginning of the following fall term they elect either the Silviculture-Management or the Forest Management–Utilization major. The courses required in each of these programs are regarded as essential to professional training in the two general fields. For the Silviculture-Man-

agement major these comprise: Biology 642a and Forestry 122a, 151a, 160a, 180a, 124b, 130b, 152b, and 170b during the first year; and Forestry 120a, 133a, 153, 129b, 154b, 171b, and 173b during the second year. For the Forest Management–Utilization major the required courses are: Biology 642a, and Forestry 122a, 160a, 162a, 180a, 124b, 152b, 164b, 166b, and 170b in the first year; and Forestry 133a, 151a, 153, 175a, 129b, 154b, 171b, and 173b in the second.

Men who elect the Silviculture-Management major may, at the beginning of their first spring term at the School, if permitted by a special School committee, shift to the Forest Science major. This major is intended normally to lead to doctoral work following the earning of the M.F. degree, and includes requirements in language and mathematics not present in the other two majors. After having taken Biology 642a and Forestry 122a, 151a, 160a, and 180a during his first fall term, the student in this major must take the following courses at some time during his remaining one and a half years at the School: Mathematics 10a, Forestry 152b, either Forestry 130b or 133a, either Forestry 165a or 170b, two additional forestry courses and one forestry special project course, a course in German or in French, and a course in the kind of statistical methods appropriate to his field of interest.

Electives in these three majors, when needed to make up a full program, may be made from appropriate courses in the School of Forestry and in other University departments. *Students are permitted to substitute electives for certain required courses if they have had acceptable similar courses elsewhere or can show other justification for such substitution.* Qualified students may elect a thesis project in their final year of residence.

Doctor of Forestry

The degree of Doctor of Forestry is conferred upon students in the School of Forestry who have completed the necessary residence requirements for graduate study and have met other prescribed conditions. It is conferred only for work of distinction in which the student displays powers of original scholarship. The following statement of residence re-

quirements must not be construed to imply that the degree will be granted merely in recognition of faithful performance of work.

The length of time required for a student to obtain the D.For. degree is determined by the character of his previous training and by the quality of his work in the School of Forestry. The minimum requirement for the degree is three full years of graduate study and research, but in some cases the student will require additional time in order to qualify for the degree. No student will be admitted to study for the doctorate until he has obtained a master's degree in forestry, and fulfillment of this requirement is usually, but not invariably, accepted as one year of work toward the D.For. degree. With the approval of the faculty, work of equal grade done in residence at another collegiate institution will be accepted toward the degree, but at least one academic year of resident study beyond the master's degree must be done in this university before the student can be admitted to candidacy for the D.For. degree and proceed with the preparation of his dissertation. There is no automatic transfer from other institutions of credits applicable to the doctorate, but in each case allowance is made toward discharge of the residence requirements upon recommendation of the Doctoral Committee after the student has been in residence for an academic year and has met the language requirements. Work on the dissertation must be done either at this university or in association with an approved college, university, or research station. The equivalent of a full year of such work on a dissertation will be regarded as fulfilling the final year of graduate study required for the D.For. degree. Regardless of where the work on his dissertation may be done, a doctoral student must pay a minimum of two full years of tuition beyond his master's degree. He must also register in the School at the beginning of the term in which he expects to receive the D.For. degree.

Students who find it necessary to interrupt their graduate work for a year or more are subject to a general rule that from the time they register for the D.For. degree not more than six calendar years can be allowed in which to fulfill all requirements for the degree.

The courses of study include appropriate basic subjects as well as ad-

vanced work. It is expected that the student will have covered most of these basic subjects before commencing study for the doctorate. The required advanced work depends on the special field of forestry selected and also on the student's previous training. Appropriate advanced courses in the fields of basic science, mathematics, engineering, and economics may be taken by students in the School of Forestry, with the approval of the Deans concerned. Before entering upon his work the student must secure approval of his proposed program of study and of the general plan of his dissertation. The courses chosen must be properly correlated with each other and with the research work of the dissertation.

A reading knowledge of both French and German is required, unless for special reason the student is permitted by the Doctoral Committee to substitute another language for French. This requirement should be discharged at the time the student enters upon his doctoral work. If a student does not expect to be prepared to pass the language examinations at the indicated time, on his application for admission he must satisfy the Dean that he is taking the necessary steps to meet the requirement promptly. A student who fails to discharge the language requirements during his first term of residence for the D.For. degree shall not be eligible for a full program of graduate study during the second term, thereby automatically *extending the length of time required to obtain the degree*. No student shall be permitted to take his doctoral examination or begin work on his dissertation until the language requirements are fully satisfied.

A doctoral examination must be passed by the student at least one year previous to the time he expects to present himself for the degree. He will be advised as to the options, details, and scope of the examination at the time his program of study is approved.

A student enrolled for the D.For. degree becomes a candidate for the degree when the subject of his dissertation has been approved by the faculty of the School of Forestry, and when he has passed the doctoral examination. A certificate from the Doctoral Committee that both these requirements have been met must be filed in the office of

the Registrar not later than October 31 of the academic year in which the student intends to present himself for the degree.

The dissertation should show that the student has technical mastery of the field in which he presents himself, is capable of doing independent scientific work, and is able to formulate conclusions that may in some respects modify or enlarge existing knowledge. The main text of the dissertation should be written in such form that it could be submitted as a manuscript for publication in an appropriate bulletin or journal without substantial editing. Three complete but unbound copies of the dissertation must be submitted to the Director of Graduate Studies of the School of Forestry not later than March 10 of the year in which the candidate plans to take the degree. Before April 1 he will be called on to defend his dissertation orally. If his defense is successful, he must by April 15 deposit in the office of the Registrar of the School of Forestry two permanently bound typewritten copies of the dissertation, one of which must be the original, each with a one-page digest or summary of the main results obtained. The title page must bear the year date and the words "A Dissertation Presented to the Faculty of the Yale School of Forestry in Candidacy for the Degree of Doctor of Forestry"; and the shelfback must bear the title of the dissertation and the name of the writer.

After receiving the degree, the candidate is expected to arrange for the publication, at the earliest practicable date, either of the whole or of such portions of the dissertation as the Doctoral Committee shall direct. The title page, preface, or other preliminary matter of the printed copy must contain a statement that the book or paper was a dissertation, or part or abstract of a dissertation, presented for the degree of Doctor of Forestry in the Yale School of Forestry. Five of the printed copies must be deposited in the office of the Dean of the School of Forestry immediately after publication: one of them for the files of the School and four for the University Library.

The faculty of the School of Forestry imposes on each student total responsibility for becoming aware of and fulfilling each and every requirement of the School of Forestry for the degree he seeks.

DEGREES CONFERRED THROUGH THE GRADUATE SCHOOL

Work leading to the degrees of Master of Science and Doctor of Philosophy in forestry is under the direction of the department of Forestry of the Graduate School. The instructional staff of this department includes members of the faculty of the School of Forestry and representatives from departments allied to forestry.

Master of Science

The degree of Master of Science is conferred upon students of forestry in the Graduate School who have received a bachelor's degree of marked quality for an undergraduate course in a college of high standing, have completed with sufficient distinction a minimum of one full year of graduate study in residence at Yale, and have met the other conditions prescribed by the department and by the Graduate School for the degree. The quality requirement for the master's degree is honors in one year course (or two term courses) or high pass in two year courses (or four term courses). Work in all courses must be completed and final grades reported not later than May 27 of the year in which the degree is to be conferred. Students whose work remains incomplete on that date will not receive a degree that year.

A reading knowledge of French or of German, or (with certain restrictions) of another major language which is relevant to the student's program of study, is required for the degree. Students will be examined in one of the required languages on entrance. A student who fails to pass the language examination before the end of his first term of residence cannot qualify for the master's degree in one year. The student is responsible for filing with the Registrar of the Graduate School a certificate from his department that he has met the language requirements when due.

The M.S. program is designed for students who wish to devote a year of graduate study to the scientific or economic background of forestry, rather than to its more technical aspects. It is not intended to

provide a professional training in forestry. Courses of study are arranged to meet the needs and interests of the individual student and may include subjects in the natural sciences, mathematics, and economics, as well as forestry.

A student in residence for the M.S. degree must file a petition for admission to candidacy with the Registrar of the Graduate School before spring vacation of the academic year in which he expects to take the degree. No petition will be accepted after the beginning of spring vacation.

Prospective students are advised to consult the bulletin of the Graduate School for additional information.

Doctor of Philosophy

The degree of Doctor of Philosophy is conferred upon students of forestry in the Graduate School who have completed the necessary residence requirements and have met other prescribed conditions. Prospective candidates for the degree must have received the bachelor's degree for an undergraduate course of distinction in a collegiate institution of high standing. They must also have completed at least three full years of graduate study in forestry and allied fields.

The length of time required for a student to obtain the Ph.D. degree is determined by the character of his previous education and by the quality of his work in the Graduate School. With the approval of the faculty, work of equal grade done in residence at another university or college will be accepted as fulfilling part of the residence requirement. Work done for a master's degree is sometimes, but not invariably, accepted as fulfilling one of the three years of graduate study required for the doctorate. At least one full year of resident graduate work beyond the master's degree must be done in this university before the student can be admitted to candidacy and proceed with the preparation of a dissertation. Work on the dissertation must be done either at this university or in association with an approved college, university, or research station. The equivalent of a full year of such work on a disserta-

tion will be regarded as fulfilling the final year of graduate study required for the Ph.D. degree. Regardless of where the work on his dissertation may be done, a doctoral student must pay at least two full years of tuition beyond the master's degree. He must also register in the Graduate School at the beginning of the year in which he expects to receive the Ph.D. degree. There is no automatic transfer from other universities of credits applicable to the degree, but a student who has been in residence at least one year and has met the foreign language requirements when due may, upon recommendation of the department, apply for allowance toward a discharge of the residence requirement.

Students who find it necessary to interrupt their graduate work for a year or more are subject to a general rule that not more than six calendar years be allowed in which to fulfill all requirements for the Ph.D. degree, including time spent in graduate work at other institutions for which they may expect advanced credit here.

The courses of study include appropriate basic subjects as well as advanced work. It is presumed that the student has covered some of these basic subjects prior to entering the Graduate School. The required advanced work depends on the special field of forestry selected and also on the student's previous training. Before entering upon his work he must secure approval for his proposed program of study and for the general plan of his dissertation. The courses chosen must be properly correlated with each other and with the research work of the dissertation.

A reading knowledge of both German and French is required, but in particular cases, on recommendation of the department and with the approval of the Dean of the Graduate School, another language may be substituted for French. The student's preference for another language or the fact that he has not studied French will not be grounds for substitution. If the student is not prepared to pass examinations in both languages at entrance, on his application for admission he must satisfy the Dean of the Graduate School that he is taking the necessary steps to do so promptly.

A student who enters the Graduate School without claiming advanced standing must take one of the required language examinations on admission and shall not be eligible for a full program of graduate courses if he shows such deficiency in the language as to make it appear unlikely that he will be able to pass the test during his first term of residence. The examination in the second required language must be taken at or before the beginning of the third term of residence, with the same restriction in case of failure.

Students who expect to receive allowance of one year of credit for graduate work done elsewhere are required to pass the language examinations upon entrance. No student shall be admitted to a fifth term of graduate study, taking into account work done at Yale or elsewhere for which advanced standing is claimed, until he has met the requirements in foreign languages.

Work in all courses must be completed and final grades for the academic year reported not later than June 15. Students whose work remains incomplete on that date will not receive credit for those courses.

A doctoral examination must be passed at least one year previous to the time the candidate presents himself for the degree. The student will be advised as to the options, details, and scope of the examination at the time his program of study is approved.

The dissertation must conform to the usual requirements of the Graduate School. It must embody the results of extended research and include original material worthy of publication. The main text of the dissertation should be written in such form that it could be submitted as a manuscript for publication in an appropriate bulletin or journal without substantial editing. It is desirable for the student to begin the research work for his dissertation at least eighteen months prior to the time he intends to present himself for the degree. Three complete but unbound copies of the dissertation must be submitted to the Director of Graduate Studies at the School of Forestry not later than March 10 of the year in which the candidate plans to take the degree. Before April 1 he will be called on to defend his dissertation orally. If his defense is successful, he must by April 15 deposit in the office of the

Registrar of the Graduate School two permanently bound typewritten copies of the dissertation, one of which must be the original, each with a one-page digest or summary. A third copy must be deposited in the library of the School of Forestry.

Prospective students are advised to consult the bulletin of the Graduate School for detailed information regarding admission, registration, tuition, candidacy, and graduation.

SUBJECTS OF INSTRUCTION

The regularly organized courses offered by the School of Forestry are described below. The number in parentheses indicates the credits assigned to the course.

BIOLOGY 642a, *Taxonomy of Woody Plants.* (3) Field trips, informal lectures, and classroom exercises designed to acquaint the student with the trees and shrubs of the northeastern United States and the important timber trees of North America. Particular attention is given to methods of identification, field recognition, ranges, and habitats. Six hours, fall term. Mr. Reeder.

FORESTRY 100, *General Forestry Seminar.* (0) The purpose of the general seminar is to keep the whole School informed of progress in the many specializations that make up forestry. At each session a talk by a faculty member, student, or outside scientist is followed by a period of discussion. *All students and faculty members are expected to attend.* One hour every two weeks, or as announced, fall and spring terms. Members of the staff.

FORESTRY 111b, *Seminar in Plant Pathology.* (2) Informal lectures and round-table discussion of principles and research approaches in plant pathology. Discussion leaders will include phytopathological specialists from various research agencies in the United States. Two hours, spring term. Offered in alternate years, next in 1964–65. Mr. Cowling, Mr. Dimond.

FORESTRY 113b, *Research Methods in Forest Pathology.* (3) Introduction to phytopathological methods including techniques for isolation and inoculation of plant pathogens, microbial growth measurements, assessment of physiological variation among forest fungi, propagation and testing of resistant plants, elementary enzymological studies, and diagnosis of disease problems. Three hours laboratory, plus individual research, spring term. Offered in alternate years, beginning in 1963–64. Mr. Cowling.

FORESTRY 114b, *Physiology of Trees.* (3) Discussion of current literature and problems relating to the physiology of woody plants. Open only to students who have completed appropriate work in plant physiology. Two hours lecture, plus laboratory or library work, spring term. Mr. Parker.

FORESTRY 116a, *Forest Genetics.* (3) Theory and practical application of genetics to forestry. A survey of current literature and problems relating to forest tree improvement is included in class discussions. Two hours lecture, fall term. Mr. Mergen.

FORESTRY 117b, *Research Methods in Forest Genetics.* (3) Practical study of laboratory, greenhouse, and field methods; involving assessment of natural variation, controlled pollination, induction of polyploidy, progeny testing, and vegetative propagation. Series of self-contained experiments to be followed by statistical evaluation. Three hours laboratory, plus individual research, spring term. Mr. Mergen.

FORESTRY 120a, *Soils.* (3) Fundamentals of soil science, with particular reference to applications in forestry. Two hours lecture and three hours field or laboratory work, fall term. Mr. Voigt.

FORESTRY 122a, *Fundamentals of Silviculture.* (5) The ecological basis of silviculture. Environmental factors and their influence on forest vegetation; influence of vegetation on environment; ecology and classification of forest communities. Three hours lecture and eight hours field work (field work first twelve weeks only), fall term. Mr. Lutz.

FORESTRY 123b, *Micrometeorology.* (3) Physical processes controlling the microclimate of forest and field. Principles and practice of field measurements for micrometeorological research. Two hours lecture and three hours laboratory, spring term. Mr. Reifsnyder.

FORESTRY 124b, *Practice of Silviculture.* (4) Introduction to the theory and techniques of controlling establishment, composition, and growth of forest stands. Work in nursery operation and forest fire control included in field exercises. One hour lecture and twelve hours field work last nine weeks of spring term, plus one-week field trip following end of classes in New Haven. The field work may be taken separately. Mr. Smith.

FORESTRY 126b, *Seminar in Forest Ecology.* (3) Discussion of current literature and problems relating to forest ecology and soils. Three hours, spring term. Mr. Lutz, Mr. Voigt.

FORESTRY 129b, *Advanced Silviculture.* (3) Consideration of general problems and techniques involved in the practice of silviculture. This course includes a limited amount of field work and the students who take it may take the field work of Forestry 124b during the last half of the spring term. Six hours, first seven weeks of spring term. Mr. Smith.

FORESTRY 130b, *Forest Meteorology and Fire Control.* (3) Fundamental principles of fire behavior. Large and small-scale atmospheric processes and their application to the control of forest fires and to other forestry problems. Organization for control and use of fire. Four hours lecture, first seven weeks and two hours lecture, last nine weeks, spring term. Mr. Reifsnyder.

FORESTRY 133a, *Forest Entomology and Pathology.* (5) Fundamentals of morphology, physiology, and ecology of forest insects, with a review of classification and methods of identification. Forest insect populations and the basis of control. Fundamentals of forest and woods-products pathology. Emphasis on silvicultural and physiological aspects together with a presentation of current research activity and needs. Research methods are introduced in laboratory; field observation and the methods of detection and diagnosis are given in two week-end field trips. Four hours lecture, four hours laboratory, two week-end field trips, fall term. Mr. Henson, Mr. Cowling.

FORESTRY 134b, *Seminar in Forest Fire Control.* (3) Discussion of special problems in the control and use of fire in the forest. Two hours, spring term. Mr. Reifsnyder.

FORESTRY 136a, *Insect Population Ecology.* (2) An introduction to the biometeorological and behavioral components of insect population change. One hour lecture, weekly assigned readings, and term paper, fall term. Mr. Henson.

FORESTRY 140s, *Forest Surveying.* (7) Field and office practice in plane and topographic surveying, using instruments and methods particularly adapted to forestry, including aerial photogrammetry. Seven weeks, summer term at the School's camp in northwestern Connecticut. Mr. Furnival.

FORESTRY 150s, *Forest Mensuration.* (4) Field and office work in the determination of the content and growth of forest stands. Four weeks, summer term at the School's camp in northwestern Connecticut. Mr. Furnival.

FORESTRY 151a, *Advanced Forest Mensuration.* (3) Application of statistical methods to forest measurements. Recent developments in forest mensuration. Three hours lecture, fall term. Mr. Furnival.

FORESTRY 152b, *Forest Management and Valuation.* (2) The social, economic, and technical aspects of organization of forest properties for continuous yield. Development of management inventories, growth analyses, regulation of cut, and appraisal of return on investment. Four hours, last nine weeks of spring term. Mr. White, Mr. ——.

FORESTRY 153, *Advanced Forest Management.* (4) Consideration of forest management problems and their solution, including: development of timber resources and multiple use of forest land; public relations and personnel relations in a forest organization; forest taxation, financial management, valuation and appraisal; forest inventories, growth analyses, regulation of cut

and preparation of management plans. Two hours, fall term, *and* four hours, first seven weeks of spring term. Mr. ——, Mr. White.

FORESTRY 154b, *Advanced Forest Management—Field Studies.* (8) Field examination of industrial and government forest management operations and forest management research. Intensive field application of land, timber, and growth surveys together with silvicultural studies, marking for wood products, and other activities culminating in the analysis of management needs and the preparation of a management plan. Includes two-week preparatory trip enroute to Crossett, Arkansas, and five weeks of firsthand association with the integrated forestry enterprise of the Crossett Division of Georgia-Pacific Corporation. Seven weeks, spring term. Mr. White, Mr. ——.

FORESTRY 160a, *Anatomy of Trees and Identification of Wood.* (4) Basic study of the anatomy and morphology of trees and the identification of wood. The physiological, ecological, and developmental relationships of different cells and tissues are also discussed. Two hours lecture and four hours laboratory, fall term. Mr. Berlyn.

FORESTRY 161b, *Research Methods in Anatomy of Woody Plants.* (4) Elements of microtechnique with emphasis on experimental design and analysis. After completing a series of graded exercises in technique each student selects a suitable anatomical problem, designs an experiment, collects and prepares the material for microscopic study, and submits a written report of the results. Fundamentals of microscopy, micrometry, and photomicrography are included. Open only to advanced students. Two hours lecture and four hours laboratory, spring term. Mr. Berlyn.

FORESTRY 162a, *Physical and Mechanical Properties of Wood.* (3) The physical properties of wood, with emphasis upon the influence of wood anatomy, density, and moisture. Introduction to wood-liquid relations. Stress-strain relationships for wood. Standard methods of timber testing. Defects in wood and other factors affecting strength. Derivation and application of working stresses for wood. Two hours lecture and three hours laboratory, fall term. Mr. Wangaard.

FORESTRY 163b, *Wood Chemistry.* (3) A study of the chemical components of wood with particular emphasis on cellulose chemistry. Selected laboratory experiments will deal with cellulose derived products as well as with the determination of various constituents of wood. The course should be preceded by a general course in organic chemistry. Two hours lecture and two hours laboratory per week, spring term. Mr. Karabinos.

FORESTRY 164b, *Seasoning and Preservation of Wood.* (4) Theory and practice of seasoning methods for wood products. Wood preservation: need, theory, and application. Fire retardant treatments. Three hours lecture and two hours laboratory, spring term. Mr. Kellogg.

FORESTRY 165a, *Properties of Wood.* (2) The physical, mechanical, and chemical characteristics of wood, with particular emphasis upon their relation to growth. Not open to students majoring in wood technology. Two hours lecture, fall term. Mr. Kellogg.

FORESTRY 166b, *Plywood and Laminated Wood.* (4) Characteristics and properties of wood adhesives. Control of gluing conditions. Manufacture, properties, and uses of plywood, laminated wood, and modified wood products. Two hours lecture and four hours laboratory, spring term. Mr. Wangaard.

FORESTRY 168b, *Seminar in Wood Technology.* (3) Advanced study in the various phases of wood technology. Two hours, spring term. Mr. Wangaard, Mr. Kellogg.

FORESTRY 170b, *Logging.* (2) Principles and methods involved in the harvesting of raw material from the forest, with emphasis on North American conditions. Three hours, first seven weeks of spring term. Mr. Winer.

FORESTRY 171b, *Field Studies in Logging and Lumber Manufacture.* (6) Studies of production, costs, and returns in logging and lumber manufacture, conducted on the holdings of the Crossett Division, Georgia-Pacific Corporation, in Arkansas. Four weeks, spring term. Mr. Winer.

FORESTRY 173b, *Analysis of Logging Operations.* (3) Theories and methods of analyzing the productivity and costs of logging operations. Use of time-production studies, machine rates, and other types of economic analysis in predicting and controlling costs. Four hours lecture, first seven weeks of spring term. Mr. Winer.

FORESTRY 175a, *Manufacture of Forest Products.* (2) Survey of the manufacture and distribution of the principal forest products, including lumber, plywood, pulp and paper, and wood chemicals. Two hours lecture, fall term. Mr. Winer.

FORESTRY 180a, *Economics of Forestry.* (3) An analytical approach to the economic problems of forestry and their interrelations with the general economy. Three hours, fall term. Mr. Worrell.

FORESTRY 181a, *Seminar in Forest Policy.* (3) A discussion of policies regarding forestry—their objectives, formulation through the political process, administrative execution, technical implementation, and evaluation. Emphasis is on decision making and current policy problems. Two hours, fall term. Mr. Worrell.

FORESTRY 182a, *Seminar in Industrial Forestry.* (3) The administration of large forest ownerships, with emphasis on financial management and analysis of the forest resource. Two hours, fall term. Mr. White.

Advanced field or laboratory work and literature review on special problems, related to the interests of individual students, may be taken in the following fields of study. This work will be offered in both fall and spring terms, and hours are by appointment. Students desiring to participate in special project courses or to undertake thesis work must obtain the consent of the Dean and the instructor involved. Credits for special project courses will depend on the amount of work assigned to individual students.

Forestry 102, *Special Projects in Taxonomy of Woody Plants.* Mr. Reeder.

Forestry 112, *Special Projects in Forest Pathology.* Mr. Cowling.

Forestry 115, *Special Projects in Tree Physiology.* Mr. Parker.

Forestry 119, *Special Projects in Forest Genetics.* Mr. Mergen.

Forestry 121, *Special Projects in Forest Soils.* Mr. Voigt.

Forestry 127, *Special Projects in Forest Ecology.* Mr. Lutz.

Forestry 128, *Special Projects in Silviculture.* Mr. Smith.

Forestry 132, *Special Projects in Forest Entomology.* Mr. Henson.

Forestry 135, *Special Projects in Forest Meteorology and Fire Control.* Mr. Reifsnyder.

Forestry 145, *Special Projects in Watershed Management.* Mr. Lutz, Mr. Reifsnyder, Mr. Smith, Mr. Voigt.

Forestry 155, *Special Projects in Forest Management.* Mr. ——.

Forestry 159, *Special Projects in Forest Mensuration.* Mr. Furnival.

Forestry 167, *Special Projects in Wood Technology.* Mr. Wangaard, Mr. Kellogg.

Forestry 172, *Special Projects in Logging and Manufacturing of Forest Products.* Mr. Winer.

Forestry 183, *Special Projects in Industrial Forestry.* Mr. White.

Forestry 184, *Special Projects in Forest Economics and Policy.* Mr. Worrell.

Forestry 192, *Special Projects in Wood Anatomy.* Mr. Berlyn.

Forestry 199, *Preparation for Research.* Members of the staff.

Special Forestry Lectures

Distinguished foresters are occasionally invited to deliver single lectures or special series of lectures at the School. Students in forestry are expected to take maximum advantage of their opportunities to attend such lectures. Certain series of lectures may be designated as special courses which may be taken for academic credit.

THE FORESTRY CLUB

The Forestry Club is a student organization which affords an opportunity for extracurricular activities. An attractive and spacious room in Sage Hall is set aside as a reading room and lounge as well as for the social events and meetings of the club.

THE YALE FOREST SCHOOL ALUMNI ASSOCIATION

The alumni of the School of Forestry are organized into an active body known as the Yale Forest School Alumni Association. A quarterly publication, the *Yale Forest School News,* keeps the alumni throughout the world in close contact with each other and with the School. The Association meets annually at the School late in February, as well as at gatherings connected with the annual meetings of the Society of American Foresters. The executive council of the Association acts as an advisory board to the officers of the School.

Enrollment 1962–63

STUDENTS IN THE SCHOOL OF FORESTRY

Halvor Nicolai Astrup (Cert. Akershus Landbruksskole [Hvam, Norway] 1962), Oslo, Norway.

*Henry Fenner Barbour (B.A. Columbia Univ. 1958), New Haven, Conn.

*Julian Ruffin Beckwith, 3d (B.S. Univ. of the South 1962), Charlottesville, Va.

Gilberto Beltran (For.Eng. District Univ. [Bogotá, Colombia] 1961), Bogotá, Colombia.

†Evangelos John Biblis (Dip.For. Univ. Thessaloniki 1953, M.F. Yale Univ. 1960), New Haven, Conn.

*Svante Birger Bjurulf (Royal Forestry Academy [Stockholm, Sweden] 1954), Vänersborg, Sweden.

*Terence John Blake (B.Sc. Univ. Sydney 1961, Dip.For. Australian Forestry School 1960), Mortdale, N.S.W., Australia.

*Stewart Irwin Bloodworth (B.S.F. Univ. Georgia 1962), Elko, Ga.

*James Reid Boyle (B.S.F. State Univ. Iowa 1962), Council Bluffs, Iowa.

*John Charles Bozak, Jr. (B.S. Univ. Connecticut 1962), Glenville, Conn.

*James Edward Brown (B.S. Univ. Washington 1962), Marysville, Wash.

*Benjamin Burr (B.S. Univ. Idaho 1962), Palo Alto, Calif.

Michael David Carruthers (B.A. Dartmouth Coll. 1958), Mendham, N.J.

*John Wesley Chaffin, Jr. (B.S.F. Oklahoma State Univ. 1954), Stillwater, Okla.

Abram Carrington Read Charlton (B.A. Yale Univ. 1957), Charlotte Court House, Va.

*John Charles Cummings (B.S.F. Univ. British Columbia 1962), Victoria, B.C., Canada.

Dirk Wendel De Boer (B.S. Michigan State Univ. 1953), St. Johns, Mich.

*John Edward Duff (B.S.F. Univ. Illinois 1962), McLeansboro, Ill.

*Ramón Echenique-Manrique (B.S.F. Univ. Illinois 1961), Mexico City, Mexico.

John Edward Fardal (B.S. Univ. Connecticut 1962), Mansfield Depot, Conn.

*Louis Benjamin Fauver, 2d (B.A. Dartmouth Coll. 1961), Elyria, Ohio.

William Scribner Fellows (B.A. Brown Univ. 1949), Middletown, Conn.

*Ian Stewart Ferguson (B.Sc. Univ. Melbourne 1955, Dip.For. Australian Forestry School 1957), Perth, Western Australia.

*Registered for the degree of Master of Forestry in 1963.
†Registered for the degree of Doctor of Forestry.

†Warren Edward Frayer (B.S. Pennsylvania State Univ. 1961, M.F. Yale Univ. 1962), Kirkwood, N.J.

*Philip Oscar Frazer (B.S. Univ. New Hampshire 1962), Marlboro, N.H.

*Jean-Guy Frechette (B.App.Sc. Laval Univ. 1961), Lake Beauport, P.Q., Canada.

†James Herbert Ginns (B.S. Univ. Connecticut 1960, M.S. West Virginia Univ. 1962), New Britain, Conn.

*Joseph Wilden Gorrell (B.S. Purdue Univ. 1954, M.S. Univ. California 1957), Willows, Calif.

†Gavin Siegmund Hall (B.Sc. University Coll. of North Wales 1960, M.F. Univ. British Columbia 1962), New Haven, Conn.

*William Thurston Hincks (B.A. Yale Univ. 1961), Farmington, Conn.

Morgan Noble Holmes, Jr. (B.S. Cornell Univ. 1961), New Britain, Conn.

*David John Hynd (B.Sc. Univ. Sydney 1960, Dip.For. Australian Forestry School 1959), Wollongong, N.S.W., Australia.

Dominic Ehizogie Iyamabo (B.Sc. University Coll. [Ibadan, Nigeria] 1957, B.Sc. Univ. Edinburgh 1959), Uromi, Nigeria.

*Edward Marion Jager (B.S. Univ. Georgia 1962), North Bergen, N.J.

Constantine Kostukevich (Warsaw School of Agriculture 1939, Graz Polytechnic Inst. 1948, M.F. Yale Univ. 1962), Danbury, Conn.

*Gilbert Andrew Larsen (B.A. Carleton Coll. 1961), Fond du Lac, Wis.

*Robert Patric Latham (B.S. Utah State Univ. 1962), Fort Worth, Texas.

*Teofilo Macaraeg Lindayen (B.S. Univ. Philippines 1959), Laguna, Philippines.

*Yan Bohumil Linhart (B.S. Rutgers Univ. 1961), Arlington, Va.

*Thomas Madison McCarty (B.S. Univ. Georgia 1962), Forsyth, Ga.

*Ronald Douglas Somerled Macdonald (B.A. Univ. Oxford 1960), Birmingham, England.

Douglas Andrew MacKinnon (B.S. Yale Univ. 1958), Tenafly, N.J.

*Edward Gordon Mannion (B.Sc. Univ. Queensland 1955, Dip.For. Australian Forestry School 1958), Brisbane, Queensland, Australia.

†Richard Edward Mark (B.S. New York State Coll. Forestry 1950, M.F. Yale Univ. 1960), Patterson, N.Y.

*David Alan Marquis (B.S. Pennsylvania State Univ. 1955), Lakeport, N.H.

*Frederick William Marshall, Jr. (B.S. Univ. Idaho 1962), Spokane, Wash.

†Geza Andrew Matolcsy (B.S.F. Univ. British Columbia 1959, M.F. Yale Univ. 1962), Winnipeg, Man., Canada.

*Jule Blair Meredith, Jr. (B.S. Louisiana State Univ. 1962), Lyons, Ore.

Bradford Wheeler Monahon (B.A. Brown Univ. 1954), New Haven, Conn.

*Registered for the degree of Master of Forestry in 1963.

†Registered for the degree of Doctor of Forestry.

*Clarence Moses Moore (B.S. Univ. Georgia 1962), Willacoochee, Ga.
*Robert Norman Mowbray (B.A. Dartmouth Coll. 1957), Baltimore, Md.
*Edmond Charles Packee (B.S. Montana State Univ. 1962), South Milwaukee, Wis.
Nils Parr (B.A. New York Univ. 1962), Bethel, Conn.
Charles Joseph Patten (B.A. Yale Univ. 1960), Fall River, Mass.
*Charles Alfred Peterson (B.A. Dartmouth Coll. 1961), Hamilton, Mont.
*John Knight Prescott (B.A. Dartmouth Coll. 1961), Wellesley Hills, Mass.
*Walter Edward Reid (B.S. Univ. Washington 1962), Tacoma, Wash.
*Guy Edward Sabin (B.S. Clemson Agricultural Coll. 1959), Charleston, S.C.
*Leo Sayn-Wittgenstein (B.Sc.F. Univ. Toronto 1957, M.A. Carleton Univ. [Ottawa] 1962), Ottawa, Ont., Canada.
*Ray Barner Secrist (B.S. Univ. Maine 1962), Lewisburg, Pa.
*Herbert Percival Sims (B.S.F. Univ. British Columbia 1961), Winnipeg, Man., Canada.
*William Hulse Smith (B.S. Rutgers Univ. 1961), Trenton, N.J.
*James Christian Space (B.S. Univ. Idaho 1962), Orofino, Idaho.
George Wade Staniar (B.A. Colgate Univ. 1962), Short Hills, N.J.
*Albert Gustav Stoll (B.S. Univ. California 1962), Inglewood, Calif.
*Grover Paris Sykes, Jr. (B.S. Univ. Georgia 1960), Savannah, Ga.
†Brian John Turner (B.Sc. Univ. Sydney 1956, Dip.For. Australian Forestry School 1958, M.F. Yale Univ. 1962), Cessnock, N.S.W., Australia.
Jesus Enrique Vilela (B.C.E. Univ. of the Andes 1960), Merida, Venezuela.
†John Paul Vimmerstedt (B.S. New York State Coll. Forestry 1953, M.F. Yale Univ. 1958), Jamestown, N.Y.
*John Thomas White (B.S. Univ. Georgia 1962), Augusta, Ga.
*Robert Hayden Whitney (B.A. Yale Univ. 1959), New Haven, Conn.
*John Harold Willoughby (B.S. Univ. Georgia 1962), Thomaston, Ga.
*Joseph Ryan Womble (B.S. Univ. Georgia 1962), Savannah, Ga.

Students in the School of Forestry, 73.

STUDENTS IN FORESTRY IN THE GRADUATE SCHOOL

Emma Aguirre Artuz-Phillips (B.Sc. Univ. Philippines 1956), Gams, Sur., Philippines.
Jeffery Burley (B.A. Univ. Oxford 1961, M.F. Yale Univ. 1962), Portsmouth, Hants, England.

*Registered for the degree of Master of Forestry in 1963.
†Registered for the degree of Doctor of Forestry.

David Challinor, Jr. (B.A. Harvard Univ. 1942, M.F. Yale Univ. 1959), New Haven, Conn.

Robert Hill Donnelly (B.S. Univ. Washington 1956, M.F. Yale Univ. 1960), Longview, Wash.

Donald Paige Fowler (B.Sc.F. Univ. New Brunswick 1955, M.F. Yale Univ. 1956), Thornhill, Ont., Canada.

George David Frazier (B.S. Univ. Idaho 1950, M.S. 1959), Walnut Creek, Calif.

Lee Pierce Herrington (B.S. Univ. Maine 1959, M.F. Yale Univ. 1960), Hamden, Conn.

Charles Harrison Anthony Little (B.Sc.F. Univ. New Brunswick 1961, M.F. Yale Univ. 1962), Ottawa, Ont., Canada.

James Harry Lowe, Jr. (B.A. Univ. Tennessee 1955, M.S. Ohio State Univ. 1957), New Haven, Conn.

Robert James Miller, Jr. (B.S. North Carolina State Coll. 1956, M.F. Yale Univ. 1962), Latta, N.C.

Gopal Singh Rautela (B.Sc. D.S.B. Government Coll. [Nainital] 1959, M.Sc. 1961), Nainital, India.

Gerald Ray Stairs (B.S. Washington State Univ. 1958, M.F. Yale Univ. 1960), Mesa, Wash.

William Ivo Stein (B.S. Pacific Coll. 1943, B.F. Oregon State Coll. 1948, M.F. Yale Univ. 1952), Portland, Ore.

Harry Vernon Wiant, Jr. (B.S. West Virginia Univ. 1954, M.F. Univ. Georgia 1959), Arcata, Calif.

Robert Wilbar Wilson, Jr. (B.S. Pennsylvania State Univ. 1947, M.F. Yale Univ. 1948), Upper Darby, Pa.

Christopher William Yeatman (B.Sc. Univ. Adelaide 1951, Dip.For. Australian Forestry School 1951, M.F. Yale Univ. 1957), Chalk River, Ont., Canada.

Students in Forestry in the Graduate School, 16.

INSTITUTIONS REPRESENTED

Akershus Landbruksskole [Hvam, Norway]	1
Australian Forestry School	6
Brown University	2
Carleton College	1
Carleton University [Ottawa, Canada]	1
Clemson Agricultural College	1
Colgate University	1
Columbia University	1
Cornell University	1
Dartmouth College	5
D.S.B. Government College [Nainital, India]	1
District University [Bogotá, Colombia]	1
Graz Polytechnic Institute	1
Harvard University	1
Laval University	1
Louisiana State University	1
Michigan State University	1
Montana State University	1
New York State College of Forestry	2
New York University	1
North Carolina State College	1
Ohio State University	1
Oklahoma State University	1
Oregon State College	1
Pacific College	1
Pennsylvania State University	3
Purdue University	1
Royal Forestry Academy [Stockholm, Sweden]	1
Rutgers University	2
State University of Iowa	1
University College [Ibadan, Nigeria]	1
University College of North Wales	1
University of Adelaide	1
University of the Andes	1
University of British Columbia	4
University of California	2
University of Connecticut	3
University of Edinburgh	1
University of Georgia	9
University of Idaho	4
University of Illinois	2
University of Maine	2
University of Melbourne	1
University of New Brunswick	2
University of New Hampshire	1
University of Oxford	2
University of the Philippines	2
University of Queensland	1
University of the South	1
University of Sydney	3
University of Tennessee	1
University of Thessaloniki	1
University of Toronto	1
University of Washington	3
Utah State University	1
Warsaw School of Agriculture	1
Washington State University	1
West Virginia University	2
Yale University	23
Total,	59.

GEOGRAPHICAL DISTRIBUTION

UNITED STATES

California	5	New York	2
Connecticut	16	North Carolina	1
Georgia	7	Ohio	1
Idaho	1	Oklahoma	1
Illinois	1	Oregon	2
Iowa	1	Pennsylvania	2
Maryland	1	South Carolina	1
Massachusetts	2	Texas	1
Michigan	1	Virginia	3
Montana	1	Washington	5
New Hampshire	2	Wisconsin	2
New Jersey	6		*Total*, 23.

FOREIGN COUNTRIES

Australia	5	Nigeria	1
Canada	8	Norway	1
Colombia	1	Philippines	2
England	2	Sweden	1
India	1	Venezuela	1
Mexico	1		*Total*, 11.

GENERAL SUMMARY

Students enrolled in the School of Forestry	73
Students from the Graduate School	16
Total number of students	89
Total number of institutions represented	59
Total number of states represented	23
Total number of foreign countries represented	11

THE WORK OF YALE UNIVERSITY IS CARRIED ON IN THE FOLLOWING SCHOOLS:

YALE COLLEGE: Courses in liberal arts, sciences, and engineering. Bachelor of Arts (B.A.), Bachelor of Science (B.S.).

GRADUATE SCHOOL: Courses for college graduates. Master of Arts (M.A.), Master of Arts in Teaching (M.A.T.), Master of Science (M.S.), Master of Industrial Administration (M.I.A.), Doctor of Philosophy (Ph.D.); Certificate in Transportation. Instruction in science and mathematics given by the faculty of the SHEFFIELD SCIENTIFIC SCHOOL.

SCHOOL OF MEDICINE: Courses for college graduates and students who have completed requisite training in approved institutions. Doctor of Medicine (M.D.). Postgraduate study in the basic sciences and clinical subjects. Course in public health for qualified students. Master of Public Health (M.P.H.), Doctor of Public Health (Dr.P.H.).

DIVINITY SCHOOL: Courses for college graduates. Bachelor of Divinity (B.D.), Master of Arts in Religion (M.A.R.). Qualified students may enroll for degree of Master of Sacred Theology (S.T.M.).

LAW SCHOOL: Courses for college graduates. Bachelor of Laws (LL.B.). Graduate work: Master of Laws (LL.M.), Doctor of the Science of Law (J.S.D.), Doctor of Civil Law (D.C.L.).

SCHOOL OF ENGINEERING: Courses for college graduates. Master of Engineering (M.Eng.), Doctor of Engineering (D.Eng.).

SCHOOL OF ART AND ARCHITECTURE: Professional courses: Architecture, City Planning, Painting, Sculpture, and Graphic Design. Degrees: Bachelor of Architecture (B.Arch.), Bachelor of Fine Arts (B.F.A.), Master of Architecture (M.Arch.), Master of City Planning (M.C.P.), Master of Fine Arts (M.F.A.).

SCHOOL OF MUSIC: Course for college graduates. Master of Music (Mus.M.).

SCHOOL OF FORESTRY: Courses for college graduates. Master of Forestry (M.F.), Doctor of Forestry (D.For.).

SCHOOL OF NURSING: Course for college graduates who have completed requisite training in approved schools of nursing. Master of Science in Nursing (M.S.N.).

SCHOOL OF DRAMA: Courses for college graduates. Master of Fine Arts (M.F.A.), Doctor of Fine Arts (D.F.A.).

INSTITUTE OF FAR EASTERN LANGUAGES: Courses in Chinese, Japanese, Korean, and Southeast Asian languages.

NOTE: Women are not admitted to Yale College or to the School of Forestry.

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1962/63

BULLETIN OF YALE UNIVERSITY

School of Forestry

SERIES 58, NUMBER 3. 1 FEBRUARY 1962

BULLETIN OF YALE UNIVERSITY

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The Bulletin, which is issued semimonthly, includes:
1. *The University Catalogue Number.*
2. *The Report of the Treasurer Number.*
3. *The Catalogue Numbers of the several Schools.*
4. *The Alumni Directory Number.*

School of Forestry, 1962

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Calendar

1962	18 *June*	*Mon.*	*Summer term begins.*
	1 *Sept.*	*Sat.*	*Summer term ends.*
	17 Sept.	Mon.	Registration for students in the one-year program.
	19 Sept.	Wed.	Registration for students in the two-year program.
	20 *Sept.*	*Thurs.*	*Classes begin,* 8 A.M.
	21 Nov.	Wed.	Thanksgiving recess begins, 6 P.M.
	26 Nov.	Mon.	Thanksgiving recess ends, 8 A.M.
	18 Dec.	Tues.	Christmas recess begins, 6 P.M.
1963	2 Jan.	Wed.	Christmas recess ends, 8 A.M.
	14 Jan.	Mon.	Spring-term class schedules due.
	26 *Jan.*	*Sat.*	*Fall term ends,* 1 P.M.
	28 *Jan.*	*Mon.*	*Spring term begins,* 8 A.M.
	23 Feb.	Sat.	Classes in New Haven end for students taking southern field work, 1 P.M.
	4 March	Mon.	Southern field work begins.
	16 March	Sat.	Spring recess in New Haven begins, 1 P.M.
	1 April	Mon.	Spring recess in New Haven ends, 8 A.M.
	25 May	Sat.	Southern field work ends.
	1 *June*	*Sat.*	*Classes in New Haven end,* 1 P.M.
	2 June	Sun.	Field trip in Forestry 124b begins.
	8 June	Sat.	Field trip in Forestry 124b ends.
	10 June	Mon.	Commencement.
	17 *June*	*Mon.*	*Summer term begins.*
	31 *Aug.*	*Sat.*	*Summer term ends.*

Corporation of Yale University

President Alfred Whitney Griswold, PH.D., L.H.D., LL.D.

Fellows His Excellency the Governor of Connecticut, *ex-officio.*
Charles Denston Dickey, M.A., *Chestnut Hill, Pa.*
Morris Hadley, LL.B., M.A., *New York City.*
Rev. Amos Niven Wilder, D.D., *Cambridge, Mass.*
Wilmarth Sheldon Lewis, LITT.D., L.H.D., *Farmington, Conn.*
Benjamin Brewster Jennings, M.A., *Glen Head, N.Y.* (June,* 1964)
Juan Terry Trippe, D.C.S., LL.D., *New York City.*
Rev. Gardiner Mumford Day, D.D., *Cambridge, Mass.*
Edwin Foster Blair, LL.B., M.A., *Fairfield, Conn.*
Charles Merville Spofford, LL.B., M.A., *New York City. (June,* 1963)
Herbert Francis Sturdy, LL.B., M.A., *Los Angeles, Calif. (June,* 1965)
John Hay Whitney, L.H.D., LL.D., *New York City.*
Thomas Keith Glennan, D.ENG., SC.D., LL.D., *Cleveland, Ohio. (June,* 1967)
Joseph Irwin Miller, M.A., *Columbus, Ind.*
Joseph Richardson Dilworth, LL.B., M.A., *Princeton, N.J. (June,* 1962)
William Putnam Bundy, M.A., LL.B., *Washington, D.C.*
Harold Howe, 2d, M.A., *Scarsdale, N.Y. (June,* 1966)

Provost Kingman Brewster, Jr., LL.B., LL.D.

Secretary Reuben Andrus Holden, PH.D.

Treasurer Charles Stafford Gage, M.A.

Assistant to the President Charles Michael O'Hearn, M.A.

*The date when the term of each Alumni Fellow expires is printed after his name.

School of Forestry

PROFESSORS EMERITI

John Shaw Boyce, M.F., PH.D., *Professor Emeritus of Forest Pathology.*
Herman Haupt Chapman, M.F., SC.D., *Harriman Professor Emeritus of Forest Management.*
Ralph Chipman Hawley, M.F., *Morris K. Jesup Professor Emeritus of Silviculture.*
Ernest Theodore Frederick Wohlenberg, M.F., *Professor Emeritus of Industrial Forestry.*

BOARD OF PERMANENT OFFICERS

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Kingman Brewster, Jr., LL.B., LL.D., *Provost of the University.*
George Alfred Garratt, M.F., PH.D., SC.D., *Dean, and Pinchot Professor of Forestry.*
Harold John Lutz, M.F., PH.D., *Morris K. Jesup Professor of Silviculture.*
Walter Huber Meyer, M.F., PH.D., *Harriman Professor of Forest Management.*
Frederick Field Wangaard, M.S., PH.D., *Manufacturers' Association Professor of Forest Products.*
Zebulon Waters White, M.F., *Clifton R. Musser Professor of Industrial Forestry.*

ADDITIONAL OFFICERS

Jesse Howard Buell, M.F., PH.D., *Associate Dean.*
George Mason Furnival, M.F., D.FOR., *Associate Professor of Forest Mensuration.*
Walter Robert Henson, PH.D., *Associate Professor of Forest Entomology, and Lecturer in Zoology.*
François Mergen, M.F., PH.D., *Associate Professor of Forest Genetics.*
John Raymond Reeder, PH.D., *Associate Professor of Botany, and Curator of the Herbarium of Yale University.*
William Edward Reifsnyder, M.F., PH.D., *Associate Professor of Forest Meteorology.*
David Martyn Smith, M.F., PH.D., *Associate Professor of Silviculture.*
Garth Kenneth Voigt, PH.D., *Associate Professor of Forest Soils.*
Albert Cadwallader Worrell, M.F., PH.D., *Associate Professor of Forest Economics.*
Philippe François Bourdeau, PH.D., *Assistant Professor of Forest Ecology.*
Ellis Brevier Cowling, M.S., PH.D., *Assistant Professor of Forest Pathology.*
Robert Macallan Kellogg, M.F., D.FOR., *Assistant Professor of Wood Technology.*
Johnson Parker, M.F., D.FOR., *Assistant Professor of Plant Physiology.*

Herbert Isaac Winer, M.F., PH.D., *Assistant Professor of Lumbering.*
Graeme Pierce Berlyn, PH.D., *Instructor in Wood Anatomy.*

Albert Eugene Dimond, PH.D., *Lecturer in the Physiology of Trees.*
Roger Boynton Friend, PH.D., *Lecturer in Forest Entomology.*
Henry Walter Hicock, M.F., *Lecturer in Forest Products.*
Paul Edward Waggoner, PH.D., *Lecturer in Climatology.*

ASSISTANTS IN RESEARCH AND ADMINISTRATION

Winifred Stone Dredger, *Registrar.*
Frances Mary Bolton, PH.D., *Librarian.*
Barbara Bassett Care, *Secretarial Assistant.*
Madeline Elaine DiSanto, *Assistant in Research.*
Frary Hager Donnelly, *Secretarial Assistant.*
Hope Hersey, *Assistant in Research.*
Joseph John Maisano, Jr., *Horticulturist.*
Ethel Beard Nelson, *Secretarial Assistant.*
James Frederick Randall, *Electronic Engineer.*
Mary Record, *Secretarial Assistant.*
Loretta Esther Santagata, *Assistant in Research.*
Leila Willner, *Cataloguing Assistant in the Library.*

ALUMNI EXECUTIVE COUNCIL 1961–63

William P. House, M.F. 1937, *President, Chesham, N.H.*
Edgar P. Wyman, M.F. 1939, *Vice-President, Storrs, Conn.*
Robert W. Eisenmenger, M.F. 1951, *South Natick, Mass.*
Arthur W. Greeley, M.F. 1935, *Washington, D.C.*
Arthur W. Nelson, Jr., M.F. 1939, *Glendale, Ohio.*

UNIVERSITY COUNCIL COMMITTEE ON THE SCHOOL OF FORESTRY

Hugh P. Brady, B.A. 1914, *Chairman, Seattle, Wash.*
Richard C. Doane, B.A. 1919, *New York City.*
B. Frank Heintzleman, M.F. 1910, *Juneau, Alaska.*
John M. Musser, B.A. 1930, *St. Paul, Minn.*
James S. Rockefeller, B.A. 1924, *Greenwich, Conn.*
G. Corydon Wagner, PH.B. 1916, *Tacoma, Wash.*
John W. Watzek, Jr., PH.B. 1913, *Chicago, Ill.*
Frederick K. Weyerhaeuser, B.A. 1917, *St. Paul, Minn.*

History and Organization

The School of Forestry was founded in 1900 and is the oldest institution of its kind in continuous operation in America. The men responsible for its establishment were Gifford Pinchot, B.A. 1889, LL.D. 1925, and Henry S. Graves, B.A. 1892, LL.D. 1940, the first Director and later Dean of the School. These two men were among the first Americans to obtain professional forestry training abroad. The Yale School of Forestry is the result of their conviction that the availability of comparable professional education in this country was one of the first prerequisites for the development of forestry in America. At the time of its foundation, the School was designed to educate men for a profession which did not exist on this continent. Its subsequent development has been coincident with the remarkable advances in American forestry over the intervening years.

The initial endowment of the School was a gift from the family of Mr. James W. Pinchot, honorary M.A. 1905. The permanent funds now available for instruction and research in forestry aggregate over $2,500,000, subsequent additions having been made to the original endowment by members of the Pinchot family and by the forest industries, as well as by alumni and other friends of the School. The work of the School is also supported by substantial contributions from the general funds of Yale University.

In its program of professional training, the School provides a preparation for the general practice of forestry, designed to meet the needs of men entering either public or private employment. In its program of scientific training, the School offers instruction for advanced students who are interested in teaching or research, or who wish to specialize in various branches of forestry or the related sciences.

The School of Forestry is organized on a graduate basis, parallel with the Schools of Medicine and Law and the Divinity School. Its work is

intimately correlated with that of other University departments, especially with those of Biology, Economics, Engineering, Geography, Geology, and Industrial Administration, the facilities of which are available to qualified students working in the field of forestry.

Like other schools in the University, the School of Forestry is under the direction of a Dean as executive officer, with a governing board composed of the President, the Provost, the Dean, and the members of the Forestry faculty of professorial grade. A board representing the Yale Forest School Alumni Association acts in an advisory capacity to the officers of the School.

EDUCATIONAL FACILITIES

EQUIPMENT AT NEW HAVEN. The main building of the School is Sage Hall, a four-story brownstone building situated at 205 Prospect Street on Pierson–Sage Square. This building, the gift of William H. Sage, B.A. 1865, in memory of his son, DeWitt Linn Sage, B.A. 1897, was completed in 1923. Bowers Hall was erected in 1931 as an addition to Sage Hall from funds provided by the bequest of Edward A. Bowers, B.A. 1879.

Sage Hall contains laboratories for work in wood anatomy and silviculture, a library, a reading room, a herbarium and wood room, classrooms, a students' common room, and offices. Bowers Hall contains an auditorium, offices, and a soils laboratory.

The other buildings of the School of Forestry are located at 360 and 370 Prospect Street. Facilities for research and instruction in mensuration, photogrammetry, biometry, economics, and forest meteorology are located in Marsh Hall, a four-story brownstone building originally the residence of Professor Othniel C. Marsh, B.A. 1860, who bequeathed it to the University in 1899. The William B. Greeley Memorial Laboratory is a modern, one-story building which houses laboratories and other facilities for work in wood technology, forest genetics, tree physiology, forest pathology, and forest ecology. This building, completed together with an adjacent greenhouse early in

1959, was provided by funds donated by the forest industries, the John A. Hartford Foundation, and other benefactors.

The Henry S. Graves Memorial Library is housed in Sage Hall. It comprises about 89,000 volumes relating to forestry and is one of the largest forestry libraries in existence. It is well equipped with both American and foreign material. The purchase of the library of Robert Hartig in Germany in 1903 furnished the basis for the collection of foreign publications, for it contained many early works and a number of sets of periodicals in German and French dating from the first part of the nineteenth century. The School receives over 200 periodicals and other serial publications of importance in forestry. The library is freely available for the use of all students and is the most important feature of the educational facilities at the School.

The School also maintains the Samuel J. Record Memorial Collection, which now consists of more than 53,000 samples of woods from all parts of the world. These afford facilities for students interested in the commercial timbers of foreign countries, particularly of the tropics, and also provide the basis for research in the classification and comparative anatomy of woods. More than 18,000 of the tropical trees from which wood samples were obtained are represented in the herbarium of the Collection.

SUMMER CAMP. The summer session is conducted on the Great Mountain Forest in the towns of Canaan and Norfolk, Litchfield County, Connecticut. The forest is owned by Edward C. Childs, B.A. 1928, M.F. 1932, and comprises 6,800 acres of both hardwood and softwood timber. Under a coöperative agreement the tract is used as a field laboratory for instruction and research. The headquarters are in an attractive group of permanent camp buildings owned by the School and containing comfortable facilities for board, lodging, classwork, and recreation.

SOUTHERN CAMP. Since 1908 it has been customary for students in the Silviculture-Management major to conclude their work with a

twelve-week program of field instruction in the South. This work is offered in the spring term and includes field courses in forest management as well as in the harvesting and manufacture of forest products. Since 1946, headquarters for this work have been permanently established on the lands of The Crossett Company, at Crossett, Arkansas. The tract consists of over 500,000 acres under systematic forest management; the highly diversified manufacturing facilities of The Crossett Company are also used for instructional purposes. The Company maintains a completely equipped set of camp buildings for the use of the School.

SCHOOL FORESTS. The School conducts its field work in part on its own property and in part on forests which have been placed at its disposal under very favorable terms of occupancy and use. The following forests are owned by the University and administered by the School:

The *Keene Forest, near Keene, New Hampshire.* This tract of 1,400 acres is the site of a long-term investigation into all aspects of intensive management of eastern white pine and other conifers. The forest was acquired gradually between 1913 and 1938 through gifts from many friends of the School.

The *Yale Forest, located in Tolland and Windham counties, Connecticut.* This forest of about 7,700 acres is well stocked with wildlife and is representative of the hardwood, hemlock-hardwood, and white pine types of the Northeast. It is used for instruction and research in various phases of forestry and conservation. Most of the tract was given to the University in 1932 by George H. Myers, B.A. 1898, M.F. 1902.

The *Bowen Forest, near Belmont, Vermont.* This is a tract of 500 acres devoted to the management of the spruce, fir, and northern hardwood types commonly found in the mountains of the Northeast. The forest was given to the University in 1922 as a memorial to Lieutenant Joseph B. Bowen, M.F. 1917, by his family.

The *George P. Brett Pinetum, at Fairfield, Connecticut.* This is a living collection of over 100 species of world conifers established by the late George P. Brett during the 1920's. It occupies five acres and is used

chiefly for work in forest genetics. The purchase of the arboretum in 1957 was made possible by a gift from Richard M. Brett, M.S. 1955.

OTHER FACILITIES FOR FIELD WORK. In addition to the foregoing the School has the use of two other forests:

The *Natural Preserve, owned by Yale University.* This is a hardwood forest of about 100 acres located on the edge of the city of New Haven. It is used for instruction and research in the ecological aspects of forestry, botany, and zoology.

The *Eli Whitney Forest, owned by the New Haven Water Company.* This forest of 22,000 acres is composed of several tracts immediately adjacent to New Haven. It has been administered for over half a century under a coöperative arrangement between the Company and the School and constitutes one of the oldest continuously managed forests in the country. It is composed predominantly of native hardwoods and hemlock, but also contains extensive coniferous plantations. This forest is the School's main field laboratory for instruction and research in forest ecology and silviculture.

COÖPERATING AGENCIES. The School of Forestry works in close coöperation with several agencies located in New Haven which are not connected with Yale. These organizations include the Connecticut Agricultural Experiment Station and the Forest Insect and Disease Laboratory of the Northeastern Forest Experiment Station, United States Forest Service.

Programs and Admission Requirements

MASTER'S DEGREES

The professional degree, *Master of Forestry* (M.F.), is conferred by the School of Forestry upon satisfactory completion of programs of study designed to prepare men for careers in the practice of forestry.

Two general curricula lead to the M.F. degree. One affords a complete professional training in forestry for men who have as undergraduates majored in subjects other than forestry. The program of study consists largely of a series of prescribed courses extending through one summer term and two academic years, and provides two options, one in Silviculture and Management, the other in Wood Technology and Utilization. This curriculum, which is patterned after those designed for professional training in law and medicine, is intended for men who have good foundations in one or more of the disciplines basic to forestry.

The second curriculum leading to the M.F. degree is intended for men who have undergraduate degrees in forestry and wish to strengthen their professional backgrounds or develop special knowledge in some particular phase of forestry. The program of study is highly flexible, being adjusted to the needs and interests of the individual. Forestry graduates of colleges and universities offering accredited instruction in forestry normally qualify for the M.F. degree in one academic year. The time required by forestry graduates of other institutions is usually one-and-a-half academic years, but may vary from one year to two years, depending on the extent and character of previous training.

The degree of *Master of Science* (M.S.) in forestry is conferred by the Graduate School, but the studies are directed by the faculty of the School of Forestry, organized as the department of Forestry in the Graduate School. This program is intended for qualified students who

wish to specialize in some particular phase of forestry but have no need or desire for full professional training.

DOCTORAL DEGREES

Doctoral study in forestry at Yale may lead either to the degree of *Doctor of Forestry* (D.For.) conferred through the School of Forestry, or to that of *Doctor of Philosophy* (Ph.D.) conferred through the Graduate School. Study for the latter degree is directed by the department of Forestry in the Graduate School, which comprises the faculty of the School of Forestry and representatives of allied departments of the University. Both doctoral programs are designed primarily for men who wish to prepare themselves for careers in teaching or research. They differ chiefly in that the D.For. course of study and dissertation subject may emphasize applied or technological instruction and research, whereas the Ph.D. program is chiefly concerned with the basic scientific or economic aspects of forestry.

Students who wish to study for the D.For. degree must have obtained the M.F. degree, or equivalent professional training, before starting study for the doctorate. Students with bachelors' degrees representing scientific training appropriate to their chosen fields of specialization may embark directly on study toward the Ph.D. degree, although it may sometimes be desirable to study for the M.F. degree first.

Prospective applicants for admission to graduate study in any phase of forestry should direct their first inquiries to the Dean of the School of Forestry, explaining their objectives and describing their previous training. Those whose interests will best be served by work toward the M.S. or Ph.D. degree will then be referred directly to the Graduate School.

COMBINED BIOLOGY AND FORESTRY STUDIES

The School does not offer a four-year undergraduate curriculum in forestry. However, undergraduates in the program of Combined Bi-

ology and Forestry Studies in Yale College may qualify for the privilege of starting the normal two-year curriculum leading to the M.F. degree at the end of the Junior year, beginning with the work of the summer term. In order to qualify, such students must achieve a weighted average of 80 per cent or higher in the work of the first two-and-one-half years in Yale College. They become eligible for the B.S. degree at the conclusion of the Senior year, which is devoted entirely to the forestry program, and may then apply for admission to the School of Forestry for the final year of work leading to the M.F. degree. In this way men in the Combined Studies can complete their professional training in five years of collegiate work. Those who embark on this program but fail to achieve the necessary average for admission to forestry courses at the end of the Junior year may continue in the biology major and apply for admission to the School of Forestry upon graduation from Yale College.

SPECIAL STUDENTS

Under special circumstances, college graduates who do not intend to qualify for a degree may be admitted to the School of Forestry as special students to pursue work in subjects for which they have had sufficient preliminary training.

INDUSTRIAL FORESTRY SEMINARS

Several times each year the School conducts special short-term seminars for practicing foresters and executives who are associated with or interested in the conduct of forestry by industrial enterprises. The sessions are devoted to intensive study and discussion of a broad variety of the common problems and procedures involved in the management of forest industries. Typical subjects covered in the discussions include income taxation, legal and financial aspects of forest management, labor relations, public relations, and recent advances in forest products research. The discussions are led by experts in these subjects drawn from

all parts of the country. The sessions will usually take place at the School of Forestry, but may sometimes be held in coöperation with institutions in other forest regions of this country or Canada. Tuition is $200 for seminars of ten-days' duration, and $100 for five-day sessions. Participants need not have had formal training in forestry. The requirements and procedures for admission described in the following sections do not apply to the Industrial Forestry Seminars. Further information about them may be secured by corresponding directly with the Dean or the Professor of Industrial Forestry, who is in charge of this program.

INSTRUCTION FOR STUDENTS IN OTHER DIVISIONS OF THE UNIVERSITY

Both graduate and undergraduate students in any division of Yale University may, with the consent of the Deans or other authorities concerned, elect courses offered by the School of Forestry for which they are prepared. The same election in other departments of the University is available to students registered in the School of Forestry.

Although women are not admitted to study for degrees in the School of Forestry, those registered in the Graduate School may study for the M.S. or Ph.D. degrees in certain specialized branches of forestry. Those registered in other departments of the Graduate School may, by special permission and if properly qualified, take any of the courses offered by the School of Forestry, except for certain courses or portions thereof that involve extended periods of field work.

REQUIREMENTS FOR ADMISSION

Master of Forestry (Two-Year Curriculum)

Men graduates of colleges and universities of requisite standing, who have completed the normal four-year program for a bachelor's degree, or Seniors who expect to receive such a degree, will be considered for

admission to the two-year curriculum leading to the Master of Forestry degree, provided they have done creditable work in certain prerequisite undergraduate courses and have otherwise acceptable academic records. Applicants must have a knowledge of mathematics through trigonometry. They must also have taken at least one college course in general botany; the botanical instruction normally included in college courses in general biology is usually acceptable for discharge of this requirement. In addition, they must have had at least one college course in any four of the following subjects: advanced botany, zoology, geology, soil science, meteorology, chemistry, physics, mathematics beyond trigonometry, economics, or those parts of engineering which deal with mechanics or the properties of materials.

The two-year M.F. curriculum is designed for men who have majored in subjects other than forestry, but preference is accorded to students whose undergraduate training represents an outstandingly good foundation for education in forestry. Since forestry is an applied science, thorough grounding in one or more of the underlying sciences, particularly botany, usually represents the best foundation. However, preparation should not be concentrated in the physical and natural sciences to the exclusion of the humanities and social sciences. Men who have majored in the humanities and social sciences are considered eligible for admission, provided that they can meet at least the minimum prerequisites in the sciences. Undergraduates who have majored in economics, engineering, or mathematics are well prepared for specialization in certain branches of forestry, although it is desirable that a complete professional training in forestry precede such specialization.

Students in any field of study who wish guidance in arranging undergraduate programs in anticipation of training in forestry at Yale are invited to correspond or consult with the Dean at any time.

Master of Forestry (One-Year Curriculum)

The normal four-year undergraduate curriculum at an accredited department, school, or college of forestry will ordinarily be accepted as

meeting all course prerequisites for admission to the one-year M.F. curriculum.

Doctor of Forestry

The M.F. degree, or its equivalent, is a prerequisite for admission to studies leading to the degree of Doctor of Forestry. However, men who are studying for the M.F. with the intention of continuing into work at the doctoral level are encouraged, in so far as possible, to take courses which represent logical preparation for subsequent advanced studies. Applicants for study toward the doctorate are judged on the basis of their demonstrated or potential ability for original research and other scholarly work.

Application Procedure

Application for admission to studies leading to either the M.F. or D.For. degree must be made to the School of Forestry on a form which will be furnished by the Registrar upon request. It must be accompanied by official transcripts of the student's academic record at all colleges and universities which he has attended, and will not be regarded as complete until all additional information indicated on the application form has been filed. Applicants desiring financial assistance and those residing outside North America are required to submit their applications *by February 1 preceding the academic year in which they desire to enroll;* all others are strongly urged to file their applications by that date. Only under exceptional circumstances will consideration be given to applications for admission submitted after June 1.

Applications from men who desire to enroll in the School of Forestry as special students are handled in the same manner as those from men who seek admission for work leading to a degree.

Applicants for whom English is not a native language may be required to file a statement of proficiency in the use of the English language; each statement must be certified by a person fluent in English.

Formal *application for admission to study for the Ph.D. or M.S. degree*

should be submitted to the Assistant Dean of the Graduate School *not later than February* 1, but initial inquiries are best directed to the School of Forestry.

GRADUATE RECORD EXAMINATION

Applicants who wish to be admitted to study for the M.F. degree are *urged* to take the Aptitude Test (verbal and quantitative factors) of the Graduate Record Examination. Such action is strongly recommended to men who are applying for financial aid and to those whose undergraduate records are not of the highest caliber. In doubtful cases, action on applications will be deferred until the men involved have taken this test. Therefore, it is advantageous to take the test before the final date for submission of applications.

Applicants who wish to study for the D.For. degree (or the M.S. or Ph.D. degrees in the Graduate School) are *required* to submit transcripts of their scores in the Aptitude Test of the Graduate Record Examination before their applications can be considered. If this test has been taken previously, it is not necessary to repeat it at the time of application for admission; in such cases, it is sufficient to submit a transcript of the scores already achieved.

Information about the Graduate Record Examination may be obtained and arrangements for taking it may be made by direct application to the Educational Testing Service, Princeton, New Jersey. Applicants in the West may write to the Educational Testing Service, 4640 Hollywood Boulevard, Los Angeles 27, California. The examination is given periodically at many colleges and universities throughout the United States and Canada, and local examiners at these institutions can advise students about the procedure for making application. The examination tests general knowledge and does not require special preparation. There is no arbitrary passing grade in any of the tests; the scores achieved by an applicant are regarded as an important supplement to the transcripts of his academic record.

These examinations are to be given on April 28, July 7, and November 17, 1962, as well as on January 19 and March 2, 1963, but the closing dates for applications for each examination come fifteen or more days earlier. Owing to the delay in reporting G.R.E. scores, doctoral applicants may jeopardize their chances of obtaining financial aid if they take the examination later than the November 17 testing.

General Information

REGISTRATION

Each student must make final registration at the office of the Registrar of the School of Forestry, 26 Sage Hall, 205 Prospect Street, New Haven, prior to the opening of the term for which he is enrolling. (See Calendar, p. 3.) Registration for the summer term of 1962 will be made on the *morning* of Monday, June 18. Fall-term registration for students enrolling in the one-year program will be made on Monday, September 17; for students in the two-year program it will be made on Wednesday, September 19. A penalty of $10 will be charged for late registration.

Each student is required to file a schedule of his fall-term courses with the Registrar within three days after the opening day of the academic year. There is no special registration for the spring term, but each student is required to file his course schedule with the Registrar two weeks prior to the close of the fall term.

All foreign students are required to complete a non-academic registration at the Bureau for Foreign Nationals (see p. 33) prior to their regular academic registration.

TUITION AND OTHER EXPENSES

TUITION. Tuition charges are as follows: for the M.F. degree and special students, $500 for full work in each fall and spring term (i.e., $1,000 for the September to June academic year), $300 for half of full work in each of these terms, $250 for the summer term; for the D.For. degree, $675 per term for full work, $400 per term for half of full work.

The total minimum tuition payable by a student is determined by the time requirement for the degree; i.e., one year, or two years plus

the summer term, for the Master of Forestry, and two years beyond the master's degree for the Doctor of Forestry.

A student proceeding to the D.For. degree who has paid the required full tuition for two years beyond the master's degree will thereafter be charged the dissertation fee of $250 for each year of residence or of registration in absentia. Students eligible for the reduced fee of $250 may audit courses without extra charge. When such a student takes courses for credit, his tuition charges will be computed on a prorata basis. In no case can this charge be less than the dissertation fee.

A student who has paid part-time tuition fees during his first two years of residence beyond the master's degree will be charged in his third year the remainder of the minimum tuition he owes, but in no case will the fee be less than $250.

A student who, having met the minimum time requirement and paid the required minimum tuition, continues work as a candidate for the degree, either in residence or in absentia, must pay the fees applicable, usually the dissertation fee. Students in residence while completing their dissertations must register each year at the beginning of the fall term and will be subject to the appropriate fee each year they remain in residence. Registration and payment of fees each year is required of all students as long as their candidacy is still in progress, except students who are excused from registration by the Dean. Appointment to a University post does not exempt the student from registration and payment of fees. A student who has discharged the minimum tuition requirement and who has permission from the Dean to work in absentia is required to register, however, only at the beginning of the term in which he plans to present his dissertation. Before obtaining permission from the Dean to work in absentia on a dissertation, the student must show that he has made substantial progress on his dissertation and that he has received sufficient guidance.

When graduate study done elsewhere is accepted in partial fulfillment of the normal residence requirements for the M.F. or D.For. degree, no tuition will be charged for the amount of work accepted in lieu of work in the School of Forestry.

BOND. Upon registration each student is required to file with the Registrar an application for a bond, from a corporation designated by the Treasurer of the University, that his financial obligations to the University will be guaranteed by that corporation. A form to be used in applying for the bond is furnished the student at the time of his initial registration; the fee is included in the tuition charge. No student will receive his diploma until all obligations to the University have been discharged.

PAYMENT OF BILLS. Bills for each term's tuition are sent from the University Bursar's office and are payable in advance. Payment must be made on or before the date specified on the bill; after that date the Bursar is required to collect a penalty of $5 in addition to the amount due. If a student resigns during the first fourteen days of the fall term, full rebate of tuition will be made. If the resignation is accepted during the remainder of the first half of the fall term, or during the first half of any other term, one third of that term's tuition will be canceled. If a student resigns after midterm, no part of the tuition will be rebated.

FIELD WORK. The field courses necessitate traveling expenses which vary from year to year according to the localities where the work is conducted. Expenses in connection with the field work in New Haven are usually not over $30. The southern field work involves transportation expenses and about $15 per week for board. At the eleven-week summer camp a fee of $200 is charged for living expenses. Students taking the southern field work and that of Forestry 129a and 124b will need blankets or sleeping bags.

ROOMS AND BOARD. Board can be obtained in New Haven at prices ranging from $20 per week upward. Room rent for single students amounts to $9 or more per week. Accommodations for married students range up to $85 or more per month.

GENERAL EXPENSES. The total cost of an academic year of study toward the M.F. degree is likely to be at least $2,200 for a single stu-

dent and $3,200 for a married student, exclusive of the cost of transportation to and from New Haven. Total expenses for the summer term range from $500 to $575. Expenses for study toward a doctoral degree will be $350 more per academic year because of the difference in tuition.

SCHOLARSHIPS AND FELLOWSHIPS

The School of Forestry ordinarily grants about twenty tax-free scholarships and fellowships each year. Recipients are required to pay tuition charges, but no assistance in teaching or research or other service is demanded of them. Applications for the following academic year should be filed not later than February 1 on forms which may be obtained from the Registrar of the School. Awards for the coming year are usually announced by early April. Annual stipends from these scholarships and fellowships range from $1,000 to $2,300 or more. Among the major awards are:

Charles S. Chapman Memorial Fellowships in Industrial Forestry (*Weyerhaeuser Timber Foundation*), available to men interested in advanced study in forest management, utilization, economics, or other aspects of industrial forestry.

Crown Zellerbach Foundation Fellowship, available to a graduate of a college or university in the United States.

Union Bag-Camp Paper Corporation Fellowship, available to a legal resident of Florida, Georgia, South Carolina, North Carolina, Virginia, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, or Texas, who has a degree from an accredited school of forestry in the United States.

Gilbert Kinney Fellowships (*Scott Paper Company Foundation*), available to men in the two-year course leading to the M.F. degree.

Advanced students specializing in forestry in the Graduate School are eligible not only for awards from the School of Forestry but also for certain Graduate School scholarships and fellowships. Information regarding awards made by the Graduate School may be obtained upon application to the Assistant Dean of that School.

Scholarships and fellowships are granted on the basis of the excellence of past attainments in college as well as the need for financial help. Students who receive scholarships are not barred from the assistantships described below.

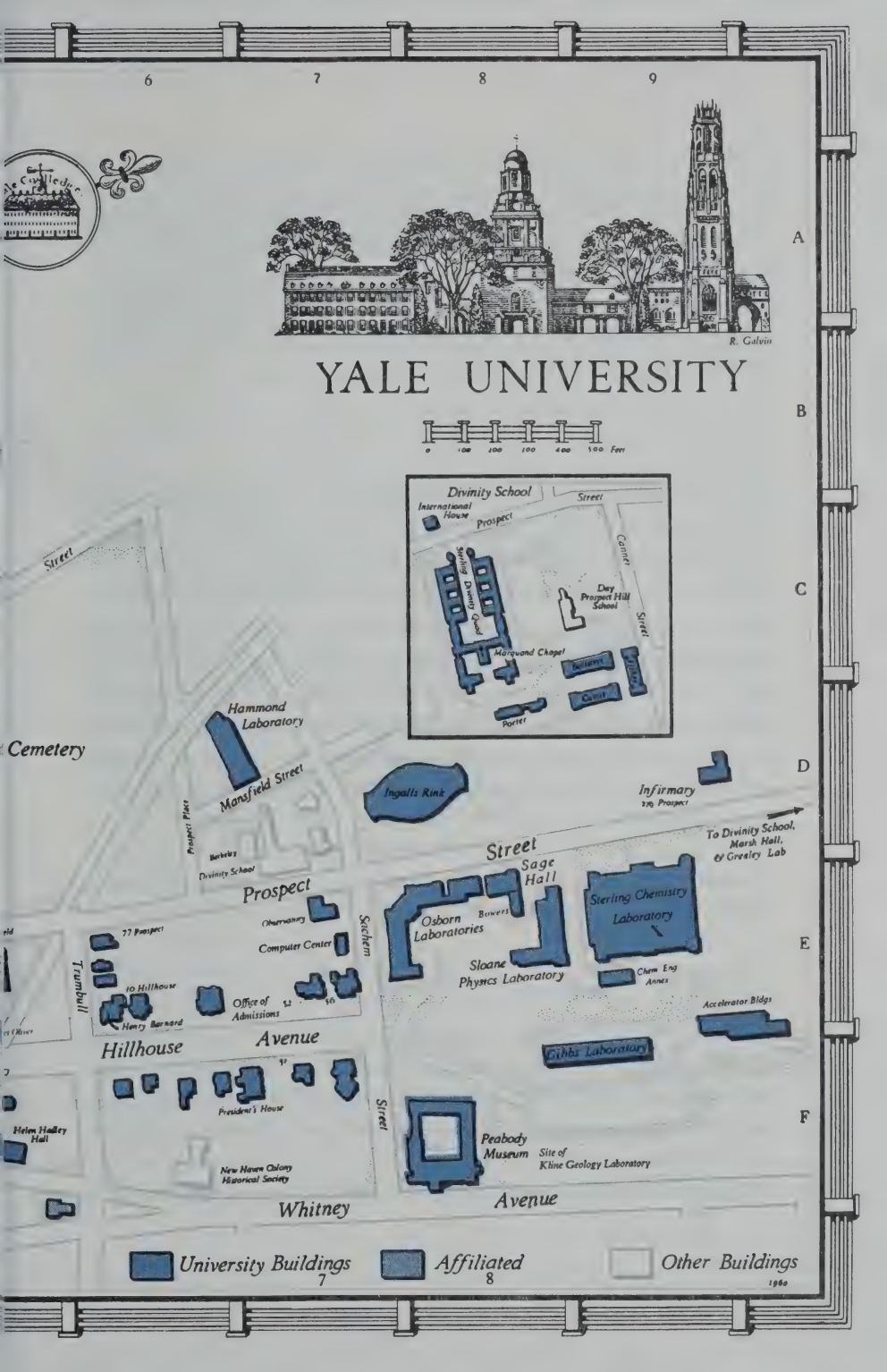
ASSISTANTSHIPS

Approximately twenty assistantships are annually available in research, instruction, or administrative activities. The assistantships may involve either part-time work during the school year, full-time work during the summer, or both. Student assistants earn from $850 to $1,800 or more during the school year, depending on their qualifications and the amount of work involved. The rates for full-time work during the summer range from $300 to $400 per month. In some instances, investigative work conducted in performance of duties may be counted for academic credit. Stipends for assistantships are subject to federal income taxes and deductions for social security payments.

Assistants may be appointed in any of the fields of study with which the School concerns itself. Ordinarily about five assistantships are available for work in wood technology. As many as twelve assistants are appointed each year to aid in the program of research in forest biology. Assistantships are also available in lines of forestry work not involved in these two programs. Applicants for assistantships should indicate those fields in which they believe they might be qualified to serve. Scholastic records of applicants are taken into consideration in assigning assistantships.

Applications should be filed not later than February 1 on blanks which may be obtained from the Registrar of the School.

Medical Center
Schools of Medicine
& Nursing
Grace New Haven
Hospital
Park
St.
Memorial
Unit
Davenport
Avenue
Howard
Ave.
York
Street
Edward S.
Harkness
Mem. Hall
Harkness Auditorium
Inst. of
Human Relations
Congress
Cedar
Street
Sterling
Dormitory
To Yale Bowl
To Yale Golf Course
Avenue
Whalley
Howe St
Dixwell
Avenue
Ray Tompkins
House
Payne Whitney Gymnasium
Tower
Pkwy
Christ Church
Chapel of
St Thomas More
Park
Drama
Annex
Pierson
Site of Art &
Architecture
Bldg.
Yale Daily
News
University
Theatre
Davenport
Broadway
To Medical Center
University Press
Site of New Colleges
Yale Co-op
Hall of Graduate Studies
Mory's
Dept.
Business
Ashmun
Calvary Baptist
York
Street
Jonathan Edwards
West
Bingham
Bradford
Saybrook
Trumbull
Sterling
Memorial
Library
Sterling
Law Buildings
Grove St
High
Street
Harkness Tower
Lawn
Lanman-Wright
Dwight Hall
Old Campus
Mc Clellan
Connecticut
Phelps
Vanderbilt
Durfee
Russell
Chapel
Street
Berkeley
Street
Rare Book and
Manuscript
Library
Hewitt
Quad
University
Dining Hall
Street
Taft Hotel
College
Calhoun
W. L. Cross
Speakes
Woodbridge
Woolsey
Hall
First Methodist
Street
451 College
493 College St.
Sterling Tower
Winchester
Kirtland
Dunham
Chapel
Trinity Church
Center Church
Temple
United Church
Elm
Dept. of
Univ. Health
Elizabethan
Club
Stoeckel
Hendrie
Faculty Club
Alumni House
Wall
Silliman
Grove
Street
St. Mary's
Church
Public Library
County Court House
Post Office
Church
Street
Timothy Dwight
A
B
C
D
E
F
1
2
3
4


6
7
8
9
A
B
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F
R. Galvin
YALE UNIVERSITY
0 100 200 300 400 500 Feet
Divinity School
International House
Prospect
Street
Sterling Divinity Quad
Day
Prospect Hill
School
Marquand Chapel
Bethel
Cemetery
Hammond
Laboratory
Mansfield Street
Ingalls Rink
Infirmary
320 Prospect
To Divinity School,
Marsh Hall,
& Greeley Lab
Sage
Hall
Sterling Chemistry
Laboratory
Osborn
Laboratories
Sloane
Physics Laboratory
Chem Eng
Annex
Accelerator Bldgs
Gibbs Laboratory
Prospect
Observatory
Computer Center
77 Prospect
10 Hillhouse
Henry Barnard
Office of
Admissions
Trumbull
Hillhouse
Avenue
Sachem
President's House
New Haven Colony
Historical Society
Helen Hadley
Hall
Peabody
Museum
Site of
Kline Geology Laboratory
Whitney
Avenue
University Buildings
7
Affiliated
8
Other Buildings
1960

LOANS

The School of Forestry also has limited resources for loans to promising students in need of financial help. Such loans are ordinarily granted only to students already in residence. They are payable within five years after graduation, and interest at the rate of 2 per cent per annum is charged from the date of graduation to the due date. Students desiring loans should apply to the Dean.

PRIZES

The *William Egbert Wheeler Prize,* established in 1911 by gift from the family of William Egbert Wheeler, B.A. 1866, is awarded annually to the student who secures the highest standing both in class and field work in silviculture. The amount of the prize is the income from $1,500.

The *Charles Lathrop Pack Foundation Prize* was established in the spring of 1924 by a gift of $2,000 from Charles Lathrop Pack of Lakewood, New Jersey. The income from this fund is offered as an annual prize for the best original article of popular interest on some forestry subject. The competition is open to members of the School of Forestry and to Seniors in Yale College taking the Combined Biology and Forestry Studies.

A number of University prizes are open to competition by students in all schools of the University.

GENERAL UNIVERSITY PRIVILEGES

A calendar of events in the University is issued each week during the academic year in the *Yale University Weekly Calendar,* which is posted on the bulletin board of the School of Forestry. The hours when special and permanent collections of the University may be seen are also recorded in this publication.

The facilities of the several libraries of the University, which contain

over 4,490,000 volumes, are available to men in the School of Forestry. Students are encouraged to use the University Library, as well as the libraries of departments allied to forestry.

The lecture courses given annually on certain foundations include the Lyman Beecher lectures on preaching, the Francis Bergen lectures on English literature or drama, the Block lectures on journalism, the Bromley lectures on journalism, literature, or public affairs, the Russell H. Chittenden lectures, the Frank Austin Gooch lectures, the Edward H. Hume lectures, the Treat B. Johnson lectures on organic chemistry, the Daniel S. Lamont lectures on English letter writers and letter writing or on government, the Martin A. Ryerson and the Trowbridge lectures on the fine arts, the Shaffer lectures on the life, character, and teachings of Jesus, the Silliman lectures on the sciences, the Frank Ellsworth Spaulding lectures on education, the William L. Storrs lectures on law and jurisprudence, the Dwight H. Terry lectures on religion in the light of science and philosophy, the Trumbull lectures, and lectures by distinguished foreigners on the Stanley Woodward foundation.

Musical engagements arranged annually include chamber concerts, symphony concerts, organ recitals, performances by students in the School of Music, and concerts by distinguished artists.

The Peabody Museum of Natural History contains collections in anthropology, mineralogy, oceanography, paleontology, and some aspects of zoology.

The Art Gallery contains representative collections of ancient, medieval, Renaissance, and modern art.

The privileges of The Church of Christ in Yale University are extended to all students of the University and to members of the faculty and administrative staff. The Church is nonsectarian. Chaplains of the several faiths serve the students.

The facilities of the Payne Whitney Gymnasium are available to men students and faculty members in all schools of the University. They may use the gymnasium and all of its facilities, except the special baths, upon payment of a fee of $15 for the school year or $10 for the second term

only. Transfer of gymnasium membership to another or use of a member's privileges by an outsider is not permitted. Students may skate at the David S. Ingalls Rink at scheduled times. A nominal charge is made.

The Financial Aids Office, at 111 Prospect Street, is maintained to give assistance to self-supporting students in obtaining employment during termtime.

HEALTH SERVICES

The Department of University Health is available to *all* members of the University for *initial advice and referral* regarding health problems. *For students,* twenty-four-hour coverage for emergency problems is available throughout the calendar year through the University Police (telephone STate 7–3131, extension 330). Full clinic services are available from September 1 of each academic year through Commencement Day at 435 College Street, and limited service through the same station Monday through Friday during the summer recess.

The Yale Infirmary, at 276 Prospect Street, is available to students for in-patient care from September 1 through Commencement Day.

Students should regard the Health Service as their *point of first call* for all health problems. All general, and most specialist, care is available to them in the Clinic. When outside care is required the best arrangement can be made through the Health Service.

A medical examination by the Department of University Health is required of each entering student. Subsequent examinations may be ordered at the discretion of the staff. Evidence of immunity from smallpox is required for entrance to the University. The right is reserved to vaccinate any student whose evidence of immunity is not satisfactory to the Department.

Most of the costs of health service care, when provided in the Health Service building or in the Infirmary, are covered in the tuition fee. Certain special procedures are not included in this fee, and are subject to extra charge. Students will be informed when such extra charge is involved in services recommended. In almost no instances are services

provided in doctors' private offices, outside of University buildings, covered under the tuition fee, even when students are so referred by the Health Service.

The coverage also includes a Medical Indemnity Plan which helps defray expenses arising from illness requiring care in a general hospital. This plan remains in effect from the date the student starts his academic work at Yale until the final day of the month in which he graduates or otherwise severs his connection with the University.

The detailed benefits and exclusions of the Health Service coverage are explained in a leaflet issued at registration, or available on application at the Department of University Health.

Married students' dependents are not covered under these services. However, they may receive coverage under the Medical Indemnity Plan for an additional fee, upon *personal application of the student* at the Department.

Individuals studying under Yale auspices in the Greater New Haven area, and not paying a full tuition fee, will be billed a University Health Service fee of $65 by the Bursar, unless they can demonstrate at the University Health Service office, 435 College Street, that they have other adequate health insurance.

BUREAU FOR FOREIGN NATIONALS
FULBRIGHT AND FOREIGN STUDY PROGRAMS

This office is the authorized University representative for all negotiations between resident foreign nationals and the United States Government. All questions relating to the United States Immigration and Naturalization Service and the United States Department of State can be referred here. In addition, the Bureau acts as an information center for foreign nationals in matters relating to non-academic activities. All foreign nationals are required to register with this office at the beginning of each academic year.

For students who are United States citizens the Bureau will also dis-

tribute and process applications for Fulbright Awards and will provide information relating to Fulbright Awards at faculty level.

Students who desire information concerning study abroad may direct their inquiries to this office.

OFFICE FOR SELECTIVE SERVICE AND VETERANS AFFAIRS

This office is the authorized University representative in all negotiations with the Veterans Administration and the Selective Service System.

The University has assigned to this office the following functions:

1. Official registration of all veterans and "war orphans" for educational benefits under the provisions of Chapters 33 and 35 of Title 38, United States Code, "Veterans Benefits."

2. Official selective service registration and all contact with local boards, including University certification of student status.

Students may obtain general information concerning military service at this office. In this connection, the office has prepared a booklet, *Military Service: Opportunities and Obligations.*

Instruction in Forestry

DEGREES CONFERRED THROUGH THE SCHOOL OF FORESTRY

Master of Forestry

The degree of Master of Forestry is conferred upon students who have satisfactorily completed the necessary program of resident technical study, the length of time required being determined by the student's previous training and by the quality of his work in the School of Forestry. With the approval of the faculty, work of equivalent grade done in residence at another school of forestry or an institution where forestry is taught as a major subject will be accepted toward the degree.

Students who have completed an acceptable undergraduate course in forestry may qualify for the M.F. degree with one academic year of work in residence. Students who have had no previous professional training in forestry will require two years of resident study (including one summer term) to qualify for the degree.

At the beginning of the academic year each student is required to prepare his fall-term plan of study in consultation with his faculty adviser. At that time, general consideration will also be given to the spring-term program, although submission of a complete course schedule is not required until two weeks prior to the close of the fall term.

ONE-YEAR CURRICULUM. There is no prescribed program for students who have completed an acceptable undergraduate course in forestry, but the elected work must have a definite relation to the individual's needs or to his field of interest. The program of study for such men may include a limited number of formal forestry courses which were not adequately covered in undergraduate study, but it will be composed largely of advanced courses, seminars, and special project work. Students enrolled in this program are normally required to com-

plete a minimum of four courses per term, so selected as to form a logical and correlated schedule. With the permission of the Deans concerned, students may also elect appropriate courses in botany, chemistry, economics, engineering, geography, geology, mathematics, statistics, zoology, and other subjects in the University outside the School of Forestry. In order to allow time for proper selection of courses, students enrolling in the one-year program are required to register in New Haven three days prior to the beginning of classes in the fall.

The normal program of study for men training to become practitioners of general forest management includes the southern field work and such students should make their plans for the spring term accordingly. However, men in this category who wish to specialize in some particular aspect of forestry may be permitted to continue their work in New Haven during the spring term if a more appropriate program of study can be arranged.

A thesis is not required of candidates for the M.F. degree, but may be elected by qualified students who wish to devote a substantial amount of time to a specific research project during their year of residence. One typewritten and substantially bound copy of the thesis, including a one-page digest or summary of the main results obtained, must be submitted to the Registrar by February 15 if the candidate expects to take the spring field work in the South, or by May 15 if he remains in New Haven.

TWO-YEAR CURRICULUM. Students who have had no previous professional training in forestry start their work with the summer term at the School's camp in northwestern Connecticut (see p. 11). There Forestry 140s and 150s are required courses for all. At the beginning of the following fall term they elect either the Silviculture–Management or the Wood Technology–Utilization major. The courses required in each of these programs are regarded as essential to professional training in the two general fields. For the Silviculture–Management major these comprise: Biology 42a and Forestry 122a, 151a, 160a, 180a, 123b, 124b, 130b, 170b, and 175b during the first year;

and Forestry 110a, 120a, 131a, 152, 153, 165a or 181a, 154b, and 171b during the second year. For the Wood Technology-Utilization major the required courses are: Biology 42a and Forestry 122a, 160a, 162a, 180a, 161b, 164b, and 166b in the first year; and Forestry 110a, 151a, 152 or 153, 182a, 112b, 170b, and 175b in the second.

Electives in these two programs may be made from appropriate courses in the School of Forestry and in other University departments. *Students are permitted to substitute electives for certain required courses if they have had acceptable similar courses elsewhere or can show other justification for such substitution.* Qualified students may elect a thesis project in their final year of residence.

Doctor of Forestry

The degree of Doctor of Forestry is conferred upon students in the School of Forestry who have completed the necessary residence requirements for graduate study and have met other prescribed conditions. It is conferred only for work of distinction in which the student displays powers of original scholarship. The following statement of residence requirements must not be construed to imply that the degree will be granted merely in recognition of faithful performance of work.

The length of time required for a student to obtain the D.For. degree is determined by the character of his previous training and by the quality of his work in the School of Forestry. The minimum requirement for the degree is three full years of graduate study and research, but in some cases the student will require additional time in order to qualify for the degree. No student will be admitted to study for the doctorate until he has obtained a master's degree in forestry, and fulfillment of this requirement is usually, but not invariably, accepted as one year of work toward the D.For. degree. With the approval of the faculty, work of equal grade done in residence at another collegiate institution will be accepted toward the degree, but at least one academic year of resident study beyond the master's degree must be done in this university before the student can be admitted to candidacy for the D.For.

degree and proceed with the preparation of his dissertation. There is no automatic transfer from other institutions of credits applicable to the doctorate, but in each case allowance is made toward discharge of the residence requirements upon recommendation of the Committee on the D.For. Degree after the student has been in residence for an academic year and has met the language requirements. Work on the dissertation must be done either at this university or in association with an approved college, university, or research station. The equivalent of a full year of such work on a dissertation will be regarded as fulfilling the final year of graduate study required for the D.For. degree. Regardless of where the work on his dissertation may be done, a doctoral student must pay a minimum of two full years of tuition beyond his master's degree. He must also register in the School at the beginning of the term in which he expects to receive the D.For. degree.

Students who find it necessary to interrupt their graduate work for a year or more are subject to a general rule that from the time they register for the D.For. degree not more than six calendar years can be allowed in which to fulfill all requirements for the degree.

The courses of study include appropriate basic subjects as well as advanced work. It is expected that the student will have covered most of these basic subjects before commencing study for the doctorate. The required advanced work depends on the special field of forestry selected and also on the student's previous training. Appropriate advanced courses in the fields of basic science, engineering, and economics may be taken by students in the School of Forestry, with the approval of the Deans concerned. Before entering upon his work the student must secure approval of his proposed program of study and of the general plan of his dissertation. The courses chosen must be properly correlated with each other and with the research work of the dissertation.

A reading knowledge of both French and German is required, unless for special reason the student is permitted by the Committee on the D.For. Degree to substitute another language for French. This requirement should be discharged at the time the student enters upon his doctoral work. If a student does not expect to be prepared to pass the lan-

guage examinations at the indicated time, on his application for admission he must satisfy the Dean that he is taking the necessary steps to meet the requirement promptly. A student who fails to discharge the language requirements during his first term of residence for the D.For. degree shall not be eligible for a full program of graduate study during the second term, thereby automatically extending the length of time required to obtain the degree. No student shall be permitted to take his comprehensive examination or begin work on his dissertation until the language requirements are fully satisfied.

A written comprehensive examination, irrespective of course examinations, must be passed by the student at least one year previous to the time he expects to present himself for the degree. This examination will cover the major field of the student's work and such subordinate subjects as may be required by the Committee on the D.For. Degree. The student will be advised as to the scope of the examination at the time his program of study is approved.

A student enrolled for the D.For. degree becomes a candidate for the degree when the subject of his dissertation has been approved by the faculty of the School of Forestry, and when he has passed the comprehensive examination. A certificate from the Committee on the D.For. Degree that both these requirements have been met must be filed in the office of the Registrar not later than November 1 of the academic year in which the student intends to present himself for the degree.

The dissertation should show that the student has technical mastery of the field in which he presents himself, is capable of doing independent scientific work, and is able to formulate conclusions that may in some respects modify or enlarge existing knowledge. The main text of the dissertation should be written in such form that it could be submitted as a manuscript for publication in an appropriate bulletin or journal without substantial editing. Two permanently bound typewritten copies of the dissertation, one of which must be the original, each with a one-page digest or summary of the main results obtained, must be deposited in the office of the Registrar of the School of Forestry not later than May 1 of the year in which the candidate plans to take the

degree. The title page must bear the year date and the words "A Dissertation Presented to the Faculty of the Yale School of Forestry in Candidacy for the Degree of Doctor of Forestry"; and the shelfback must bear the title of the dissertation and the name of the writer.

The candidate must present himself for oral examination upon his dissertation at such time and place as the Dean of the School may direct.

After receiving the degree, the candidate is expected to arrange for the publication, at the earliest practicable date, either of the whole or of such portions of the dissertation as the Committee on the D.For. Degree shall direct. The title page, preface, or other preliminary matter of the printed copy must contain a statement that the book or paper was a dissertation, or part or abstract of a dissertation, presented for the degree of Doctor of Forestry in the Yale School of Forestry. Five of the printed copies must be deposited in the office of the Dean of the School of Forestry immediately after publication: one of them for the files of the School and four for the University Library.

The faculty of the School of Forestry imposes on each student total responsibility for becoming aware of and fulfilling each and every requirement of the School of Forestry for the degree he seeks.

DEGREES CONFERRED THROUGH THE GRADUATE SCHOOL

Work leading to the degrees of Master of Science and Doctor of Philosophy in forestry is under the direction of the department of Forestry of the Graduate School. The instructional staff of this department includes members of the faculty of the School of Forestry and representatives from departments allied to forestry.

Master of Science

The degree of Master of Science is conferred upon students of forestry in the Graduate School who have received a bachelor's degree of marked quality for an undergraduate course in a college of high stand-

ing, have completed with sufficient distinction a minimum of one full year of graduate study in residence at Yale, and have met the other conditions prescribed by the department and by the Graduate School for the degree. The quality requirement for the master's degree is honors in one year course (or two term courses) or high pass in two year courses (or four term courses). Work in all courses must be completed and final grades reported not later than May 25 of the year in which the degree is to be conferred. Students whose work remains incomplete on that date will not receive a degree that year.

A reading knowledge of French or German is required for the degree. Students will be examined in one of the required languages on entrance. A student who fails to pass the language examination before the end of his first term of residence cannot qualify for the master's degree in one year. The student is responsible for filing with the Registrar of the Graduate School a certificate from his department that he has met the language requirements when due.

The M.S. program is designed for students who wish to devote a year of graduate study to the scientific or economic background of forestry, rather than to its more technical aspects. It is not intended to provide a professional training in forestry. Courses of study are arranged to meet the needs and interests of the individual student and may include subjects in the natural sciences, mathematics, and economics, as well as forestry.

A student in residence for the M.S. degree must file a petition for admission to candidacy with the Registrar of the Graduate School before spring vacation of the academic year in which he expects to take the degree. No petition will be accepted after the beginning of spring vacation.

Prospective students are advised to consult the bulletin of the Graduate School for additional information.

Doctor of Philosophy

The degree of Doctor of Philosophy is conferred upon students of forestry in the Graduate School who have completed the necessary resi-

dence requirements and have met other prescribed conditions. Prospective candidates for the degree must have received the bachelor's degree for an undergraduate course of distinction in a collegiate institution of high standing. They must also have completed at least three full years of graduate study in forestry and allied fields.

The length of time required for a student to obtain the Ph.D. degree is determined by the character of his previous education and by the quality of his work in the Graduate School. With the approval of the faculty, work of equal grade done in residence at another university or college will be accepted as fulfilling part of the residence requirement. Work done for a master's degree is sometimes, but not invariably, accepted as fulfilling one of the three years of graduate study required for the doctorate. At least one full year of resident graduate work beyond the master's degree must be done in this university before the student can be admitted to candidacy and proceed with the preparation of a dissertation. Work on the dissertation must be done either at this university or in association with an approved college, university, or research station. The equivalent of a full year of such work on a dissertation will be regarded as fulfilling the final year of graduate study required for the Ph.D. degree. Regardless of where the work on his dissertation may be done, a doctoral student must pay at least two full years of tuition beyond the master's degree. He must also register in the Graduate School at the beginning of the year in which he expects to receive the Ph.D. degree. There is no automatic transfer from other universities of credits applicable to the degree, but a student who has been in residence at least one year and has met the foreign language requirements when due may, upon recommendation of the department, apply for allowance toward a discharge of the residence requirement.

Students who find it necessary to interrupt their graduate work for a year or more are subject to a general rule that not more than seven calendar years be allowed in which to fulfill all requirements for the Ph.D. degree, including time spent in graduate work at other institutions for which they may expect advanced credit here.

The courses of study include appropriate basic subjects as well as advanced work. It is presumed that the student has covered some of these basic subjects prior to entering the Graduate School. The required advanced work depends on the special field of forestry selected and also on the student's previous training. Before entering upon his work he must secure approval for his proposed program of study and for the general plan of his dissertation. The courses chosen must be properly correlated with each other and with the research work of the dissertation.

A reading knowledge of both German and French is required, but in particular cases, on recommendation of the department and with the approval of the Dean of the Graduate School, another language may be substituted for French. The student's preference for another language or the fact that he has not studied French will not be grounds for substitution. If the student is not prepared to pass examinations in both languages at entrance, on his application for admission he must satisfy the Dean of the Graduate School that he is taking the necessary steps to do so promptly.

A student who enters the Graduate School without claiming advanced standing must take one of the required language examinations on admission and shall not be eligible for a full program of graduate courses if he shows such deficiency in the language as to make it appear unlikely that he will be able to pass the test during his first term of residence. The examination in the second required language must be taken at or before the beginning of the third term of residence, with the same restriction in case of failure.

Students who expect to receive allowance of one year of credit for graduate work done elsewhere are required to pass the language examinations upon entrance. No student shall be admitted to a fifth term of graduate study, taking into account work done at Yale or elsewhere for which advanced standing is claimed, until he has met the requirements in foreign languages.

Work in all courses must be completed and final grades reported not later than October 1 of the following academic year. Students whose

work remains incomplete on that date will not receive credit for those courses.

A written comprehensive examination, irrespective of course examinations, must be passed by the student, covering the major field of his work and such subordinate subjects as may be required by the department, at least one year previous to the time the candidate presents himself for the degree. The student will be advised as to the scope of the examination at the time his program of study is approved.

The dissertation must conform to the usual requirements of the Graduate School. It must embody the results of extended research and include original material worthy of publication. The main text of the dissertation should be written in such form that it could be submitted as a manuscript for publication in an appropriate bulletin or journal without substantial editing. It is desirable for the student to begin the research work for his dissertation at least eighteen months prior to the time he intends to present himself for the degree. Two permanently bound typewritten copies, one of which must be the original, each with a one-page digest or summary, must be deposited in the office of the Registrar of the Graduate School not later than May 1 of the year in which the candidate plans to take the degree. A third copy must be deposited in the library of the School of Forestry. The candidate must present himself for oral examination upon his dissertation at such time and place as the chairman of the department of Forestry may determine.

Prospective students are advised to consult the bulletin of the Graduate School for detailed information regarding admission, registration, tuition, candidacy, and graduation.

SUBJECTS OF INSTRUCTION

The regularly organized courses offered by the School of Forestry are described below. The number in parentheses indicates the credits assigned to the course.

BIOLOGY 42a, *Taxonomy of Woody Plants.* (3) Field trips, informal lectures, and classroom exercises designed to acquaint the student with the trees and shrubs

of the northeastern United States and the important timber trees of North America. Particular attention is given to methods of identification, field recognition, ranges, and habitats. Six hours, fall term. Mr. Reeder.

FORESTRY 100, *General Forestry Seminar.* (0) The purpose of the general seminar is to keep the whole School informed of progress in the many specializations that make up forestry. At each session a talk by a faculty member, student, or outside scientist is followed by a period of discussion. *All students and faculty members are expected to attend.* One hour every two weeks, fall and spring terms. Mr. Garratt and staff.

FORESTRY 110a, *Forest Pathology.* (3) Concepts in the field of forest pathology are presented using representative forest tree disease and wood products deterioration problems. Emphasis is given to physiological as well as silvicultural aspects of pathology and to current research needs in the field. Laboratory exercises include field and laboratory observation of pathological materials and an introduction to elementary phytopathological methods. Two hours lecture and three hours laboratory, fall term. (Advanced work in various aspects of forest pathology is offered on an individual student basis during either term under Forestry 112.) Mr. Cowling.

FORESTRY 114b, *Seminar in Physiology of Trees.* (3) Discussion of current literature and problems relating to the physiology of woody plants. Open only to students who have completed appropriate work in plant physiology. Three hours, spring term. Mr. Parker, Mr. Bourdeau.

FORESTRY 116a, *Forest Genetics.* (2) Theory and practical application of genetics to forestry. A survey of current literature and problems relating to forest tree improvement is included in class discussions. Two hours lecture, fall term. Mr. Mergen.

FORESTRY 117b, *Research Methods in Forest Genetics.* (3) Practical study of laboratory, greenhouse, and field methods; involving assessment of natural variation, controlled pollination, progeny testing, and vegetative propagation. Series of self-contained experiments to be followed by statistical evaluation. Three hours laboratory, plus individual research, spring term. Mr. Mergen.

FORESTRY 120a, *Soils.* (3) Fundamentals of soil science, with particular reference to applications in forestry. Two hours lecture and three hours field or laboratory work, fall term. Mr. Voigt.

FORESTRY 122a, *Fundamentals of Silviculture.* (5) The ecological basis of silviculture. Environmental factors and their influence on forest vegetation; influence of vegetation on environment; ecology and classification of forest communities. Three hours lecture and eight hours field work (field work first twelve weeks only), fall term. Mr. Lutz.

FORESTRY 123b, *Forest Meteorology.* (3 or 4) Introduction to the science of meteorology, including microclimatology, with application to forestry problems. Three hours lecture, and optional three hours laboratory by permission of the instructor, spring term. Mr. Reifsnyder.

FORESTRY 124b, *Practice of Silviculture.* (5) Theory and techniques of controlling establishment, composition, and growth of forest stands. Work in nursery operation and forest fire control included in field exercises. Two hours lecture and eight hours field work, plus one-week field trip at end of course, spring term. The field work may be taken separately. Mr. Smith.

FORESTRY 126b, *Seminar in Forest Ecology.* (3) Discussion of current literature and problems relating to forest ecology and soils. Three hours, spring term. Mr. Bourdeau, Mr. Lutz, Mr. Voigt.

FORESTRY 129a, *Advanced Silviculture.* (3) Consideration of general problems and techniques involved in the practice of silviculture. This course includes a limited amount of field work and the students who take it may take the field work of Forestry 124b during the spring term. Three hours, fall term. Mr. Smith.

FORESTRY 130b, *Forest Fire Control and Use.* (2) Fundamental principles of fire behavior. Organization for control of forest fires. Use of fire in forest management. Two hours, spring term. Mr. Reifsnyder.

FORESTRY 131a, *Biology of Forest Insects.* (3) The fundamentals of morphology, physiology, and ecology of forest insects, with a review of classification and the methods of identification. Forest insect populations and the fundamentals of control. Two hours lecture and three hours laboratory or field work, fall term. Mr. Henson.

FORESTRY 140s, *Forest Surveying.* (7) Field and office practice in plane and topographic surveying, using instruments and methods particularly adapted to forestry, including aerial photogrammetry. Seven weeks, summer term at the School's camp in northwestern Connecticut. Mr. Worrell.

FORESTRY 150s, *Forest Mensuration.* (4) Field and office work in the determination of the content and growth of forest stands. Four weeks, summer term at the School's camp in northwestern Connecticut. Mr. Worrell.

FORESTRY 151a, *Advanced Forest Mensuration.* (3) Application of statistical methods to forest measurements. Recent developments in forest mensuration. Three hours lecture, fall term. Mr. Furnival.

FORESTRY 152, *Forest Finance.* (3) Economic principles of forestry enterprises. Valuation of forest properties. Appraisal of rates of return, damage, and stumpage value. Forest taxation and insurance. Two hours, fall term, *and* three hours, first four weeks of spring term. Mr. Meyer.

FORESTRY 153, *Principles of Forest Management.* (3) The economic, scientific, and technical bases of organizing and developing a forestry operation for continuous yield. Adaptation of the basic principles to the problems of practical forest management. Management inventories, growth analyses, and regulation of cut. Management plan preparation. Two hours, fall term, *and* three hours, first four weeks of spring term. Mr. Meyer.

FORESTRY 154b, *Applied Forest Management.* (8) Intensive field application of land, timber, and growth surveys together with silvicultural studies, marking for wood products, and other activities culminating in the analysis of management needs and the preparation of a management plan for a specific forested tract. The work involves firsthand association with the integrated forestry enterprise of The Crossett Company in Arkansas as well as field trips to several other forestry operations in the South. Seven weeks, spring term. Mr. White.

FORESTRY 160a, *Anatomy of Trees and Identification of Wood.* (4) Basic study of the anatomy and morphology of trees and the identification of wood. The physiological, ecological, and developmental relationships of different cells and tissues are also discussed. Two hours lecture and four hours laboratory, fall term. Mr. Berlyn.

FORESTRY 161b, *Research Methods in Anatomy of Woody Plants.* (4) Elements of microtechnique with emphasis on experimental design and analysis. After completing a series of graded exercises in technique each student selects a suitable anatomical problem, designs an experiment, collects and prepares the material for microscopic study, and submits a written report of the results. Fundamentals of microscopy, micrometry, and photomicrography are included. Open only to advanced students. Two hours lecture and four hours laboratory, spring term. Mr. Berlyn.

FORESTRY 162a, *Physical and Mechanical Properties of Wood.* (3) The physical properties of wood, with emphasis upon the influence of wood anatomy, density, and moisture. Introduction to wood-liquid relations. Stress-strain relationships for wood. Standard methods of timber testing. Defects in wood and other factors affecting strength. Derivation and application of working stresses for wood. Two hours lecture and three hours laboratory, fall term. Mr. Wangaard.

FORESTRY 164b, *Seasoning and Preservation of Wood.* (4) Theory and practice of seasoning methods for wood products. Wood preservation: need, theory, and application. Fire retardant treatments. Three hours lecture and two hours laboratory, spring term. Mr. Kellogg.

FORESTRY 165a, *Properties of Wood.* (2) The physical, mechanical, and chemical characteristics of wood, with particular emphasis upon their relation to growth. Not open to students majoring in wood technology. Two hours lecture, fall term. Mr. Kellogg.

FORESTRY 166b, *Plywood and Laminated Wood.* (4) Characteristics and properties of wood adhesives. Control of gluing conditions. Manufacture, properties, and uses of plywood, laminated wood, and modified wood products. Two hours lecture and four hours laboratory, spring term. Mr. Wangaard.

FORESTRY 168b, *Seminar in Wood Technology.* (3) Advanced study in the various phases of wood technology. Two hours, spring term. Mr. Wangaard, Mr. Kellogg, Mr. Cowling.

FORESTRY 170b, *Logging.* (2) Principles and methods involved in the harvesting of raw material from the forest, with emphasis on North American conditions. Introduction to analysis of logging operations. Three hours, first ten weeks of spring term. Mr. Winer.

FORESTRY 171b, *Field Work in Logging and Lumber Manufacture.* (6) Field studies of production, costs, and returns in logging and lumber manufacture, conducted on the holdings of The Crossett Company in Arkansas. Last five weeks of spring term. Mr. Winer.

FORESTRY 173a, *Analysis of Logging Operations.* (3) Theories and methods of analyzing the productivity and costs of logging operations. Use of time-production studies, machine rates, and other types of economic analysis in predicting and controlling costs. Two hours lecture, fall term. Mr. Winer.

FORESTRY 175b, *Manufacture of Forest Products.* (2) Survey of the manufacture and distribution of the principal forest products, including lumber, plywood, pulp and paper, and wood chemicals. Three hours, first ten weeks of spring term. Mr. Winer.

FORESTRY 180a, *Economics of Forestry.* (3) An analytical approach to the economic problems of forestry and their interrelations with the general economy. Three hours, fall term. Mr. Worrell.

FORESTRY 181a, *Seminar in Forest Policy.* (3) A discussion of policies regarding forestry—their objectives, formulation through the political process, administrative execution, technical implementation, and evaluation. Emphasis is on decision making and current policy problems. Two hours, fall term. Mr. Worrell.

FORESTRY 182a, *Industrial Forestry.* (3) The administration of large forest ownerships, with emphasis on analysis of the forest resource and the management problems of personnel, public relations, finance, and taxes. Three hours, fall term. Mr. White.

Advanced field or laboratory work and literature review on special problems, related to the interests of individual students, may be taken in the following fields of study. This work will be offered in both fall and spring terms, and hours are by appointment. Students desiring to participate in special project courses or to undertake thesis work must obtain the consent of the Dean and the instructor involved. Credits for special project courses will depend on the amount of work assigned to individual students.

Forestry 112, *Special Projects in Forest Pathology*. Mr. Cowling.

Forestry 115, *Special Projects in Tree Physiology*. Mr. Parker, Mr. Bourdeau.

Forestry 119, *Special Projects in Forest Genetics*. Mr. Mergen.

Forestry 121, *Special Projects in Forest Soils*. Mr. Voigt.

Forestry 127, *Special Projects in Forest Ecology*. Mr. Bourdeau, Mr. Lutz.

Forestry 128, *Special Projects in Silviculture*. Mr. Smith.

Forestry 132, *Special Projects in Forest Entomology*. Mr. Henson.

Forestry 135, *Special Projects in Forest Meteorology and Fire Control*. Mr. Reifsnyder.

Forestry 145, *Special Projects in Watershed Management*. Mr. Lutz, Mr. Reifsnyder, Mr. Smith, Mr. Voigt.

Forestry 155, *Special Projects in Forest Management*. Mr. Meyer.

Forestry 159, *Special Projects in Forest Mensuration*. Mr. Furnival.

Forestry 167, *Special Projects in Wood Technology*. Mr. Wangaard, Mr. Kellogg.

Forestry 172, *Special Projects in Logging and Manufacturing of Forest Products*. Mr. Winer.

Forestry 183, *Special Projects in Industrial Forestry*. Mr. White.

Forestry 184, *Special Projects in Forest Economics and Policy*. Mr. Worrell.

Forestry 192, *Special Projects in Wood Anatomy*. Mr. Berlyn.

Special Forestry Lectures

Distinguished foresters are occasionally invited to deliver single lectures or special series of lectures at the School. Students in forestry are ex-

pected to take maximum advantage of their opportunities to attend such lectures. Certain series of lectures may be designated as special courses which may be taken for academic credit.

THE FORESTRY CLUB

The Forestry Club is a student organization which affords an opportunity for extracurricular activities. An attractive and spacious room in Sage Hall is set aside as a reading room and lounge as well as for the social events and meetings of the club.

THE YALE FOREST SCHOOL ALUMNI ASSOCIATION

The alumni of the School of Forestry are organized into an active body known as the Yale Forest School Alumni Association. A quarterly publication, the *Yale Forest School News,* keeps the alumni throughout the world in close contact with each other and with the School. The Association meets annually at the School late in February, as well as at gatherings connected with the annual meetings of the Society of American Foresters. The executive council of the Association acts as an advisory board to the officers of the School.

Enrollment 1961–62

STUDENTS IN THE SCHOOL OF FORESTRY

*Emory Speer Akerman, Jr. (B.S. Univ. of the South 1961), Orlando, Fla.
*Radovan Aksentijevich (Eng.For. Univ. Belgrade 1955), Elizabeth, N.J.
*Norman Sidney Baird (B.Sc.F. Univ. Toronto 1956), Toronto, Ont., Canada.
Henry Fenner Barbour (B.A. Columbia Univ. 1958), New Haven, Conn.
*Roger Philip Belanger (B.S. Utah State Univ. 1961), Sarasota, Fla.
*George Harley Belt, Jr. (B.S. North Carolina State Coll. 1960), New Haven, Conn.
*Joseph Waldo Bennett, Jr. (B.S. Univ. Georgia 1961), Washington, Ga.
*Soonthorn Bhothigun (B.S. Kasetsart Univ. 1958), Bangkok, Thailand.
*Thomas Marion Blalock (B.S. Univ. Georgia 1961), Quitman, Ga.
*Jeffery Burley (B.A. Univ. Oxford 1961), Portsmouth, Hants, England.
*Brian Toby Callahan (B.S. Univ. Washington 1960), Seattle, Wash.
*John Franklin Cole (B.S. Louisiana State Univ. 1961), Hattiesburg, Miss.
*Le viet Du (National Coll. Agriculture [Bão Lŏe, South Vietnam] 1958, B.S. Univ. Georgia 1961), Chao-Thang, Saigon, South Vietnam.
*David Michael Dubrule (B.Sc.F. Univ. New Brunswick 1961), Prescott, Ont., Canada.
Ramón Echenique-Manrique (B.S. Univ. Illinois 1961), Mexico City, Mexico.
Louis Benjamin Fauver (B.A. Dartmouth Coll. 1961), Elyria, Ohio.
*Warren Edward Frayer (B.S. Pennsylvania State Univ. 1961), Kirkwood, N.J.
*Robert Leo Garrepy (B.A. Yale Univ. 1959), Sandy Hook, Conn.
*Ronald Wellyn Haigh (B.S. Univ. British Columbia 1961), North Vancouver, B.C., Canada.
*Edward Clarence Harris (B.S. Washington State Univ. 1961), Yacolt, Wash.
*Gordon Michael Heisler (B.S. Pennsylvania State Univ. 1961), Brownstone, Pa.
William Thurston Hincks (B.A. Yale Univ. 1961), Farmington, Conn.
†Robert Bruce Hoadley (B.S. Univ. Connecticut 1955, M.F. Yale Univ. 1957), Naugatuck, Conn.

*Registered for the degree of Master of Forestry in 1962.
†Registered for the degree of Doctor of Forestry.

*Claude McDavid Hughes (B.S. Louisiana Polytechnic Inst. 1961), Bastrop, La.
*Owen Thomas Jamison (B.S. Virginia Polytechnic Inst. 1950), Hardy, Va.
*Constantine Kostukevich (Warsaw School of Agriculture 1939, Graz Polytechnic Inst. 1948), Danbury, Conn.
Gilbert Andrew Larsen (B.A. Carleton Coll. 1961), Fond du Lac, Wis.
Yan Linhart (B.S. Rutgers Univ. 1961), Arlington, Va.
*Charles Harrison Anthony Little (B.Sc.F. Univ. New Brunswick 1961), Ottawa, Ont., Canada.
*Robert Eugene Lockhart (B.S. West Virginia Univ. 1953), Covington, Va.
†Daniel Peter Loucks (B.S. Pennsylvania State Univ. 1954, M.F. Yale Univ. 1955), East Stroudsburg, Pa.
*Charles Nassau Lowrie, 3d (B.A. Dartmouth Coll. 1955), Rye, N.Y.
*Patrick Herbert McCaslin (B.S. Univ. Washington 1961), Seattle, Wash.
†Richard Edward Mark (B.S. New York State Coll. Forestry 1950, M.F. Yale Univ. 1960), Patterson, N.Y.
*John Alexander Martin (B.S. New York State Coll. Forestry 1961), Albany, N.Y.
*Geza Andrew Matolcsy (B.S. Univ. British Columbia 1959), Winnipeg, Man., Canada.
*Robert James Miller, Jr. (B.S. North Carolina State Coll. 1956), Latta, N.C.
*Daniel Haynes Monahan (B.S. Univ. New Hampshire 1961), Hanover, N.H.
Robert Norman Mowbray (B.A. Dartmouth Coll. 1957), Baltimore, Md.
*Nathaniel Franklin Naff (B.S. Louisiana State Univ. 1961), Bastrop, La.
*Gyula Péch (B.S. Univ. British Columbia 1960), Vancouver, B.C., Canada.
*George Lucas Perry (B.S. Univ. Georgia 1961), Sanford, N.C.
Charles Alfred Peterson (B.A. Dartmouth Coll. 1961), Hamilton, Mont.
John Knight Prescott (B.A. Dartmouth Coll. 1961), Wellesley Hills, Mass.
*Lawrence Oliver Safford (B.S. Univ. Maine 1961), Waterville, Maine.
*George August Schier (B.S. Univ. New Hampshire 1958), Concord, N.H.
*Robert Gordon Slade (B.S. Univ. Vermont 1956), Springfield, Vt.
William Hulse Smith (B.S. Rutgers Univ. 1961), Trenton, N.J.
*Dale Staples Solomon (B.S. Pennsylvania State Univ. 1961), Phillipsburg, N.J.
*Gordon Balfour Squire (B.S. Univ. British Columbia 1961), Vancouver, B.C., Canada.
*Robert Blair Stutzman (B.S. Pennsylvania State Univ. 1958), Franklin, Pa.
*Roland Klaus Tiedemann (B.S. Univ. Idaho 1953), Staten Island, N.Y.
*Brian John Turner (B.Sc.F. Univ. Sydney 1956, Dip.For. Australian Forestry School 1958), Cessnock, N.S.W., Australia.

*Registered for the degree of Master of Forestry in 1962.
†Registered for the degree of Doctor of Forestry.

*Robert Claude Van Aken (B.S. New York State Coll. Forestry 1956), Roxbury, N.Y.

*Carel Lodewyk van Vredenburch (B.Sc.F. Univ. New Brunswick 1958), Driebergen, The Netherlands.

†John Paul Vimmerstedt (B.S. New York State Coll. Forestry 1953, M.F. Yale Univ. 1958), Jamestown, N.Y.

†Wilber Wilson Ward (B.S. Pennsylvania State Univ. 1940, M.F. 1952), State College, Pa.

Robert Hayden Whitney (B.A. Yale Univ. 1959), New Haven, Conn.

*Howard Lester Wright (B.A. Univ. Oxford 1961), Dyserth, Flintshire, Wales.

*John Christian Zasada (B.A. Macalester Coll. 1960), Grand Rapids, Minn.

STUDENTS IN FORESTRY IN THE GRADUATE SCHOOL

Eric Peter Bachelard (A. Dip. For. Victorian School of Forestry 1952, B.Sc. Univ. Melbourne 1957, M.F. Yale Univ. 1959), Melbourne, Australia.

Gordon Lawson Baskerville (B.Sc.F. Univ. New Brunswick 1955, M.F. Yale Univ. 1957), Willowdale, Ont., Canada.

David Challinor, Jr. (B.A. Harvard Univ. 1942, M.F. Yale Univ. 1959), New Haven, Conn.

Robert Hill Donnelly (B.S. Univ. Washington 1956, M.F. Yale Univ. 1960), Longview, Wash.

Barney Dowdle (B.S. Univ. Washington 1957, M.F. Yale Univ. 1958), Upper Darby, Pa.

Donald Paige Fowler (B.Sc. Univ. New Brunswick 1955, M.F. Yale Univ. 1956), Thornhill, Ont., Canada.

George David Frazier (B.S. Univ. Idaho 1950, M.S. 1959), Walnut Creek, Calif.

Donald William Harkin (B.A. and B.S. Montana State Univ. 1960, M.F. Yale Univ. 1961), Bend, Ore.

Lee Pierce Herrington (B.S. Univ. Maine 1959, M.F. Yale Univ. 1960), Hamden, Conn.

Robert William Kennedy (B.S. New York State Coll. Forestry 1953, M.F. Univ. British Columbia 1955), Vancouver, B.C., Canada.

Donald Thomas Lester (B.S. Univ. Maine 1955, M.F. Yale Univ. 1957), Willimantic, Conn.

*Registered for the degree of Master of Forestry in 1962.

†Registered for the degree of Doctor of Forestry.

James Harry Lowe, Jr. (B.A. Univ. Tennessee 1955, M.S. Ohio State Univ. 1957), New Haven, Conn.

Robert Joseph Marty (B.S. Michigan State Univ. 1954, M.F. Duke Univ. 1955, M.P.A. Harvard Univ. 1959), Upper Darby, Pa.

Jean-Guy Pilon (B.A. Univ. Montreal 1953, B.S. 1956, M.S. McGill Univ. 1960), Sillery, Que., Canada.

Gerald Ray Stairs (B.S. Washington State Univ. 1958, M.F. Yale Univ. 1960), Mesa, Wash.

Gordon Frederick Weetman (B.Sc.F. Univ. Toronto 1955, M.F. Yale Univ. 1958), Lorne Park, Ont., Canada.

Harry Vernon Wiant, Jr. (B.S. West Virginia Univ. 1954, M.F. Univ. Georgia 1959), Athens, Ga.

Robert Wilbar Wilson, Jr. (B.S. Pennsylvania State Univ. 1947, M.F. Yale Univ. 1948), Upper Darby, Pa.

Christopher William Yeatman (B.Sc. Univ. Adelaide 1951, Dip.For. Australian Forestry School 1951, M.F. Yale Univ. 1957), Chalk River, Ont., Canada.

Students in Forestry in the Graduate School, 19.

INSTITUTIONS REPRESENTED

Australian Forestry School	2
Carleton College	1
Columbia University	1
Dartmouth College	5
Duke University	1
Graz Polytechnic Institute	1
Harvard University	2
Kasetsart University	1
Louisiana Polytechnic Institute	1
Louisiana State University	2
Macalester College	1
McGill University	1
Michigan State University	1
Montana State University	1
National College of Agriculture [Bão Lŏe, South Vietnam]	1
New York State College of Forestry	5
North Carolina State College	2
Ohio State University	1
Pennsylvania State University	7
Rutgers University	2
University of Adelaide	1
University of Belgrade	1
University of British Columbia	5
University of Connecticut	1
University of Georgia	5
University of Idaho	2
University of Illinois	1
University of Maine	3
University of Melbourne	1
University of Montreal	1
University of New Brunswick	5
University of New Hampshire	2
University of Oxford	2
University of the South	1
University of Sydney	1
University of Tennessee	1
University of Toronto	2
University of Vermont	1
University of Washington	4
Utah State University	1
Victorian School of Forestry	1
Virginia Polytechnic Institute	1
Warsaw School of Agriculture	1
Washington State University	2
West Virginia University	2
Yale University	20

Total, 46.

GEOGRAPHICAL DISTRIBUTION

UNITED STATES

California	1
Connecticut	11
Florida	2
Georgia	3
Louisiana	2
Maine	1
Maryland	1
Massachusetts	1
Minnesota	1
Mississippi	1
Montana	1
New Hampshire	2
New Jersey	4
New York	6
North Carolina	2
Ohio	1
Oregon	1
Pennsylvania	7
Vermont	1
Virginia	3
Washington	5
Wisconsin	1

Total, 22.

FOREIGN COUNTRIES

Australia	2	The Netherlands	1
Canada	13	South Vietnam	1
England	1	Thailand	1
Mexico	1	Wales	1
		Total,	8.

GENERAL SUMMARY

Students enrolled in the School of Forestry	60
Students from the Graduate School	19
Total number of students	79
Total number of institutions represented	46
Total number of states represented	22
Total number of foreign countries represented	8

THE WORK OF YALE UNIVERSITY IS CARRIED ON IN THE FOLLOWING SCHOOLS:

YALE COLLEGE: Undergraduate courses in liberal arts, sciences, and engineering. Bachelor of Arts (B.A.), Bachelor of Science (B.S.).

GRADUATE SCHOOL: Courses for college graduates. Master of Arts (M.A.), Master of Arts in Teaching (M.A.T.), Master of Science (M.S.), Doctor of Philosophy (Ph.D.); Certificate in Transportation. Instruction in science and mathematics given by the faculty of the SHEFFIELD SCIENTIFIC SCHOOL.

SCHOOL OF MEDICINE: Course for college graduates and students who have completed requisite training in approved institutions. Doctor of Medicine (M.D.). Postgraduate study in the basic sciences and clinical subjects. Course in public health for qualified students. Master of Public Health (M.P.H.), Doctor of Public Health (Dr.P.H.).

DIVINITY SCHOOL: Course for college graduates. Bachelor of Divinity (B.D.), Master of Arts in Religion (M.A.R.). Qualified students may enroll for degree of Master of Sacred Theology (S.T.M.).

LAW SCHOOL: Course for college graduates. Bachelor of Laws (LL.B.). Graduate work: Master of Laws (LL.M.), Doctor of the Science of Law (J.S.D.), Doctor of Civil Law (D.C.L.).

SCHOOL OF ENGINEERING: Courses for college graduates. Master of Engineering (M.Eng.), Master of Industrial Administration (M.I.A.), Doctor of Engineering (D.Eng.).

SCHOOL OF ART AND ARCHITECTURE: Professional courses: Architecture, City Planning, Painting, Sculpture, and Graphic Design. Degrees: Bachelor of Architecture (B.Arch.), Bachelor of Fine Arts (B.F.A.), Master of Architecture (M.Arch.), Master of City Planning (M.C.P.), Master of Fine Arts (M.F.A.).

SCHOOL OF MUSIC: Course for college graduates. Master of Music (Mus.M.).

SCHOOL OF FORESTRY: Courses for college graduates. Master of Forestry (M.F.), Doctor of Forestry (D.For.).

SCHOOL OF NURSING: Course for college graduates who have completed requisite training in approved schools of nursing. Master of Science in Nursing (M.S.N.).

SCHOOL OF DRAMA: Courses for college graduates. Master of Fine Arts (M.F.A.), Doctor of Fine Arts (D.F.A.).